The Antecedents of Low-Level Classroom Disruption
A Bio-Ecological Perspective

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Abstract

Low-level classroom disruption (LLCD) is the fundamental behavioural issue in primary schools across England. Typically defined as surface-level behaviours (Esturgó-Deu & Sala-Roca, 2010), LLCD includes talking unnecessarily, fidgeting, distracting others, rocking on the chair and daydreaming (Ofsted, 2014). Educational literature has extensively referenced LLCD, making inferences about the potential antecedents, from within the classroom to the wider contexts (home and societal factors). However, and contradicting this, LLCD is viewed as a concept controllable by effective teachers at classroom level. Thus, research is typically classroom based, and centred round the management and control of LLCD. To date no psychological research has investigated the bio-ecological antecedents of LLCD. This mixed methods study pioneers this line of enquiry. By applying the Person, Process, Context Time Model of Development (Bronfenbrenner, 1985) processes that influence behaviour were considered. Key Stage Two pupils aged 8-11 years (N=274) from 3 schools in England, provided quantitative data at two time points (with a year lag between) recording: gender, peer pressure, executive function, global self-worth, appropriate conduct, home chaos, screen time, sleep, television in bedroom, and extra-curricular activity. A sub-sample of these pupils' parents (N=58) reported on their own personal screen time use, parenting practices and the family's socioeconomic status. Semi-structured interviews with members of teaching staff (N=8) provided an in-depth account of the *lived experience* of LLCD in the classroom providing evidence of the impact LLCD on staff and pupils.

Results show a significant increase to the presentation of LLCD across the two time points for the whole pupil sample, with male pupils displaying significantly higher levels of LLCD than the female pupils at both times. Findings also indicated at both time points that higher screen time use in the home context was directly associated with

increased LLCD in the school context for the whole pupil sample. For the male pupils only this association was partially mediated through increase in proneness to boredom. The repeated measures investigations found the relationship between screen time and LLCD to then be converse, with increases in LLCD significantly related to higher screen time for the male pupils, suggesting a cyclical reciprocal pattern of influence. Repeated measures analysis also suggested converse gender differences between the pupils' self-perceived appropriate conduct and LLCD. For the male pupils a significant result was found indicating that a lower self-perception of appropriate conduct was associated with a higher presentation of LLCD whereas, for the female pupils a higher perception of their own appropriate conduct was associated with a lower presentation of LLCD. The semi-structured interviews with teaching staff (N=8) supported the Ofsted (2014) report of LLCD having a negative impact on both the teaching and learning that takes place in the classroom. These and other results indicate that consideration needs to be given to the influences of low-level classroom disruption not only from the classroom context but also from outside the classroom, such as in the home.

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Chapter 1: Introduction and Overview

The first chapter of this thesis begins by providing the context and background to the concept of low-level classroom disruption. Followed by presenting the rationale and aims of the study. Next, a brief account of the guiding framework is covered, followed by the research questions. The final section provides a succinct chapter-by-chapter account of the thesis, highlighting its theoretical purpose and outlining the research carried out.

Context and Background

Misbehaviour in the classroom has long been a contentious issue for policy makers and schools alike (Ball, Hoskins, Maguire, & Braun, 2011). The Educational Reform Act of 1988, described as the single most important piece of educational legislation in England since the Second World War brought about major changes in education, such as the government sanctioned national curriculum and the introduction of Key Stage groups. Significant to the context of this thesis, this era marked the start of an ongoing recognition of low-level classroom disruption (LLCD) as a major behavioural issue in schools. Therefore, 1988 is an appropriate chronological starting point for this thesis in terms of modern day behavioural inclusions of LLCD in the wide spread educational literature.

In a typical primary school, a child rocking on a chair or whispering to a neighbour is commonplace and part of the "everyday life" of a classroom (Ofsted, 2014, p.5), happening several times a day (Sullivan, Johnson, Owens, & Conway, 2014). These types of behaviours classify as LLCD) and include, but are not limited to, talking unnecessarily, fidgeting, distracting others and daydreaming (Esturgó-Deu & Sala-Roca, 2010; Ofsted, 2014). Additional factors at secondary schools can also include using mobile devices inappropriately

and not having the correct equipment (Ofsted, 2014). A brief definition of LLCD is provided at this stage in the thesis. Fully delineation of LLCD will take place in Chapter 2.

Typically defined as surface-level behaviours and often referred to as involuntary or even impulsive behaviour (Esturgó-Deu & Sala-Roca, 2010; Tennant, 2004), LLCD presents no physical threat or destruction to others or to school property (Kreisberg, 2017). Independently these seemingly minor misdemeanours may be seen as less serious compared to other forms of classroom disruption such as bullying and aggression. The latter are referred to throughout this thesis as higher-level disruption. However, the robust discourse extending back almost 30 years has consistently ranked LLCD as the most troublesome disciplinary problem in schools (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2005). Teachers at all levels of schooling have reported interruptions to lessons caused by LLCD (Elton, 1989) highlighting its high prevalence. Compounding this are concerns that the presentation of LLCD has been progressively increasing over time (Kaplan, Gheen, & Midgley, 2002; Reglin, Akpo-Sanni, & Losike-Sedimo, 2012).

In relation to the classroom, literature has consistently shown that minimal distraction enables effective teaching and learning to take place, with more on-task time correlated with greater learning gains (Emmer, Evertson, & Worsham, 2009). It is suggested that due to the constant interruptions associated with LLCD pupils can lose valuable learning time, possibly as much as an hour per day (Ofsted, 2014). Furthermore, teachers are experiencing greater workplace stress resulting from the wearing effect of constant and repetitive interruptions to their teaching (Ofsted, 2014; Scott, Hirn, & Alter, 2014; Wheldall & Merrett, 1988; Wheldall, 1991).

Around the same time as the implementation of The Education Reform Act, a major school behaviour investigation took place resulting in the publication, of The Elton Report (1989). One of the fundamental recommendations from this report was that a whole school

approach to learning should be at the core of all school behaviour policies. This whole school approach is systematic in nature, and acknowledges that to establish an environment for effective teaching and learning the influences from many aspects of a pupils' emotional health and wellbeing must be considered. In keeping with the systematic view, over the last 30 years governmental and educational reports have consistently recognised potential influences on behaviour from within the classroom, but also from the wider environments, such as home and society (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2004). This recognition, and the implementation of a whole school approach has been shown to be highly effective when addressing higher-level behavioural disruption, such as bullying and aggression (Banerjee, Robinson, & Smalley, 2010; Salmivalli, Kärnä, & Poskiparta, 2010). However, unlike the higher-level disruptive behaviour, viewed as stemming from wider environmental influences, LLCD has been considered classroom specific and stemming from internal classroom and group dynamics (Elton, 1989). In keeping with this view, consecutive governmental and educational policy makers over the last 30 years have consistently considered LLCD a type of misbehaviour which should be controlled at the classroom level by effective teachers (Bennett, 2017, Elton, 1989, Ofsted, 2014, Steer, 2005). This more pastoral responsibility further increased teachers' workloads at a time when there had already been a significant increase due to the introduction of the national curriculum by the Education Reform Act (1988).

The introduction of the national curriculum introduced a set of core subjects, which every school across England would be obligated to implement. The main positive implication of the National Curriculum was to standardise the teaching and learning in all schools. Prior to this there had been very little monitoring or accountability of what pupils were learning, leading to great disparities in the standards of education that children were receiving across the county. With the introduction of the national curriculum all schools would teach the same

subjects and topics to the same standard irrespective of the pupils' gender, race, culture or socioeconomic background (Sylva, Blatchford, & Johnson, 1992). The National Curriculum implemented across England in 1992 has been monitored ever since. Pupils sit national tests, known as standardised assessment tasks (SATS) and school wide inspections are carried out by The Office for Standards in Education (Ofsted) (Webb, Vulliamy, Hamalainen, Sarja, Kimonen, & Nevalainen, 2004), with results of both published in public document such as school league tables and annual Ofsted reports. Even though the introduction and monitoring of the national curriculum was hailed as a positive landmark in education reform, (Johnson, 2007), negative consequences have been highlighted for teachers and students.

Teachers, especially in primary schools were thought to be unprepared for the challenges that this new era of education bought with it (Johnson, 2007). Their own personal expertise was questioned and held accountable for the success or failure of the pupils learning (Elton, 1989), decreasing their professional self-concept (Webb et al., 2004). The increased workload associated with the implementation of the new highly prescribed curriculum and the need to produce good or even outstanding targets in the league tables, suggested as leading to increases in levels of professional stress (Webb et al., 2004). Primary teachers also complained that national testing was having a negative effect on the pupils' behaviour and that the strict curriculum reduced their opportunities to motivate and interest the pupils (Ward, 2002), leading to a reduction in attainment and being associated with a rise in incidences of LLCD.

It has also been suggested that LLCD may be due to a pupils lack of self-regulation (Ofsted, 2014) associated with poor executive function or due to underlying conditions such as attention deficit hyperactivity disorder (Donders, 2002). In 1994, the government stipulated, "those who have educational needs must have access to regular schools which should accommodate them within a child centred pedagogy capable of meeting these needs"

(DfE, 1994, p.8). Further to this in 1997 Tony Blair's government introduced the inclusion of children with a broad range of special needs, including those classed as having behavioural, emotional and social difficulties to mainstream schooling (DFEE, 1997). Literature has suggested that an increase of atypical behaviour in the class may lead to other pupils, who may not otherwise be disruptive copying these inappropriate behaviours, thus creating a pattern of normative behaviour associated with LLCD (Pas, Cash, O'Brennan, Debnam, & Bradshaw, 2015). The Social Learning Theory, suggesting that over time influence can frame this shift in classroom norms or pressure from peers can negatively change social behaviour (Bandura, 1986). In relation to LLCD, this change in perception of classroom norms has been suggested to be the case. With pupils in denial of any wrongdoing and not realising LLCD was being viewed as inappropriate by the adults in the class (Ofsted, 2014). This view is in keeping with the most recent advice given to the government that there is a need to shift classroom climate away from negative anti-social norms in order to create a more effective teaching and learning culture (Bennett, 2017). It has also been suggested that introducing children with atypical patterns of behaviour into a class of many students would make maintaining behaviour management more difficult (Emmer & Stough, 2001).

Wide spread behaviour policies recommend that LLCD be dealt with by applying management techniques based on a behaviourist approach to learning (Bennett, 2017; Elton, 1989; Ofsted, 2014). This approach regards the outcome behaviour stemming from a direct interaction of an environmental stimulus and the pupil (Hart, 2010). This method supports the commonly held view that LLCD is the result of a particular classroom dynamic, and does not consider any compounding or wider influences beyond the immediate classroom. This approach aims to influence behaviour through encouraging teachers to respond positively to adaptive behaviour and thus reinforcing and rewarding it, while sanctioning maladaptive behaviours and therefore discouraging and decreasing this type of behaviour (Hart, 2010).

For example, for a display of good behaviour a pupil may be given a gold star (reward) and for a display of poor behaviour, including LLCD a pupil may have their playtime reduced (sanction).

It is recognised that in the busy classroom environment the teacher has to make split second classroom management decisions, potentially with little time to think about and carry out any alternative procedures, making the reactive process of issuing a sanction for an incident of LLCD appear the most effective. However, these reactive strategies are remedial in nature and present a quick fix (Nash, Schlosser & Scarr, 2016). With a behaviourist management strategy being a temporary cure needing to be repeated as often as the incidences of LLCD transpire (Slee, 1996). Practically, the process of issuing sanctions in a classroom may only take a few seconds to complete. However in relation to the everyday management of LLCD, it's highly repetitive nature means there would be a need to repeat this procedure many times during a school day absorbing many minutes, if not hours of the pupils' learning time (Infantino & Little, 2005). The majority of schools across England apply the behaviourist-based reward and sanction strategy to LLCD as recommended by their behaviour policy (Wood, 2008).

As a result of the ongoing acknowledgment of LLCD being solely influenced and consequently dealt with at classroom level empirical investigations have tended to exclusively focus within the school context, and particularly the effectiveness of the teacher in controlling LLCD through their choice of classroom management strategies (Halstead & Jiamei, 2009; Hart, 2010; Woods, 2008). The present study recognises these school level influences, and how these can affect the dynamics within the classroom effecting pupil behaviour, however the main premise of this research is to further the knowledge of the antecedents of LLCD and, by taking a systematic approach it also acknowledges and investigates potential influences from outside of the school and classroom environments.

Outside of the school context, an inexhaustible list of constructs and variables considered as predictors for the differing presentation of LLCD among children exist. The present study started the selection process of possible antecedents by considering the life style of typical children in the present day and any major changes that may have occurred outside of the school environment during the time span since the Educational Reform Act (1988). The last 30 years have been witness to many major changes that may affect a typical child's behavioural trajectory. For example, global warming has seen a decrease in winter weather, which has led to an increase in allergies and asthma among children, limiting some children's ability to participate in sustained exercise (D'Amato, Cecchi, D'Amato, & Annesi-Maesano, 2014). However, the most fundamental change that has taken place in the last 30 years has been the rapid advances in technology and the increases in electronic device use. As such an individual born after 1982 can be referred to as a member of the "Net generation" (Oblinger & Oblinger, 2005, p.1) having been born into and growing up in a world of digital technology, where technology plays an integral part of their lives.

Supporting the inclusion of this variable, technology use by children has been included as a potential influence for maladaptive classroom behaviour since The Elton Report (1989), with concerns at the time raised over the content of television programming. In line with technological advances, more recent government led reports have raised concerns over the use of mobile technology, such as smart phones and tablets, and childrens' overall increased screen time (Bennett, 2017; Ofsted, 2014). This increase is largely due to developments in mobile and personal technologies, such as smartphones or tablets, which have made the electronic world more accessible and lead to increases in the amount of time children spend using screens (Haddon & Livingstone, 2012). This increase in children screen time has led to widespread concerns about the impact this may be having on typical developmental trajectories (Agerholm, 2018). Therefore, the influence of technology,

specifically levels of screen time is considered in the present study as a possible key influence on LLCD.

Further influences considered in the present study have been highlighted by research suggesting there are indirect factors (e.g, mediators and/or moderators) which come to bear on the association between screen time and maladaptive behaviour. One such mediator suggested is a child's predisposition to experience a proneness to boredom (Ket de Vries, 2014). It is suggested that the addictive nature of the stimulating experience of using screen time is associated with the child's inability to cope with periods of time where stimulation is minimal or non-existent (Ket de Vries, 2014). This stimulation can be associated with the nature of the viewed content, such as the fast pace of gamming and/or with the amount of time spent doing such activities. Under stimulation may occur during the school day when screen time use is limited, leading to the pupil seeking out alternative stimuli, presenting as LLCD such as rocking on a chair or calling out. Another mediating variable between screen time use and LLCD considered is the amount of extra-curricular activity a child participates in (Massoni, 2011). By applying The Time Displacement Theory to this relationship, the hours spent using screen time could be consuming the hours spent participating in extra-curricular activity (Hofferth, 2010). Extra-curricular activity has been shown to enhance children physically: with increases in activity, being associated with decreased obesity (Vasques, Magalhães, Cortinhas, Mota, Leitão, & Lopes, 2014). It has also been shown to increase psychologically wellbeing. With more participation in extra-curricular activity enhancing the development of positive cognitive attributes such as self-regulation and attention (Becker, McClelland, Loprinzi, & Trost, 2014; Chaddock et al., 2010), which in turn has been associated with less behaviour problems (Massoni, 2011).

Likewise, the time displacement model suggests that sleep might mediate the association between screen time and maladaptive behaviour (Diaz et al., 2017). Sufficient

amounts of sleep have been directly cited as contributing to the upkeep of a healthy body and mind, especially throughout childhood (Diaz et al., 2017). A shortage of sleep has been associated with externalising behaviours (Astill, Van der Heijden, Van IJzendoorn, & Van Someren, 2012), many of which share characteristics and present similar to those of LLCD. It has been suggested that interruptions to healthy sleep patterns are increasingly associated with increased screen time (Hale & Guan, 2015). This relationship may be exacerbated when children have a television in their bedroom. Having a television in the bedroom has been associated with increased hours of viewing, which in turn has been found to have a direct negative effect on behaviour in childhood (Christakis et al., 2004). Considering this, and with television viewing still reported as the number one screen time choice of children aged 8-12 years (Ofcom, 2017) the hours spent watching the television in the bedroom could be seen as decreasing or displacing sleep hours, which in turn may lead to increases in maladaptive classroom behaviour.

Another potential mediator considered here is parental screen time behaviour. With adults in the UK reportedly engaging in up to 10 hours of screen time a day (Elsworthy, 2018), research suggests that there is a high correlation between a parent and child's weekly use of screen time (Lauricella, Wartella & Rideout, 2015). This relationship between parent and child screen time could be a simple demonstration of learnt behaviour, from one generation to the next (Bandura, 1977). However, the practises and behaviours of a parent have also been directly linked to the behaviour a pupil displays in the classroom, with the parent being cited as the main contributor to a child's ideals of socially acceptable behaviour (Ladd & Pettit, 2002). Screen time has been cited as having an interruptive nature to the parent-child relationship. Considering this it has been questioned how social norms, conducive to successful behavioural trajectories can be established from the parent to the child (Campbell & Park, 2008). Recent research has suggested that as parents become more

attentive to screen devices, they become more emotionally absent from the child (Christakis, 2018). This could also have repercussions in the child's home, with the household dynamics, including the rules and routines being mostly constructed by the adults (mainly the parents) in the house. Empirical studies have suggested this can lead to a home characterised by chaos with a direct negative influence on behaviour in the classroom (Whipple, Evans, Barry, & Maxwell, 2010).

To summarise, LLCD is viewed as the number one behavioural issue in schools across England (Bennett, 2017; Ofsted, 2014) and the primary interruption to effective educational instruction for teachers and the primary distraction from learning for pupils. The main premise for understanding different classroom behaviours has consistently been recommended to understand and consider a wide range of influential factors (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2004) and this has been shown to be highly effective when considering higher level disruptions. However, to date and to the researcher's knowledge in regards to LLCD consideration of a wide range of influences has not occurred and LLCD remains a construct understood at classroom level only. The present study identifies this disparity and seeks to understand low-level classroom disruption from a wider, holistic perspective.

The Present Study Rationale and Aims

The current research adopts a mixed methods design, using the *expansion* approach (see Chapter 4: Methodology for full discussion of methods) (Creswell, Planto Clark, Gutmann & Hanson, 2003). This approach allows the qualitative and the quantitative dimensions of the research to operate in parallel to investigate different aspects of LLCD, with findings integrated in a final discussion. The qualitative data collection will investigate the teachers' perception of the impact of LLCD on themselves and their pupils. Previous teacher reports have stated workload as a predictor of professional stress (National

Association of Schoolmasters Union of Women Teachers, March 2017), with incidents of LLCD adding to this stress (Aloe, Shisler, Norris, Nickerson, & Rinken, 2014; Ofsted, 2005; National Union of Teachers, 2015; Wheldall & Merrett, 1988).

Furthermore, research has highlighted the impact that LLCD has on pupils (see Chapter 2 for further evidence of impact). Notably, LLCD has been found to cause interruptions to learning which impact on the academic achievement of the whole class (Esturgo-Deu & Sala-Roca, 2010; Ofsted, 2014; Zamorski & Haydn, 2002). Through semi-structured interviews with teachers the present study aims to investigate these and other factors in order to provide a contemporary account of the impact of LLCD on the teachers and pupils' everyday classroom life.

Quantitative data collection is a repeated measures design with a one-year lag between the data collection points which aim to identify the possible antecedents of LLCD. Previously, LLCD has been widely recognised within educational practise and consistent reference has been made to potential unidirectional influences of LLCD from contexts including; school, home and wider society (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2005). However, these wider contextualised influences on LLCD have not been empirically investigated and the emphasis of research and policy has tended to concentrate on the high-level disruptive influences in the classroom (e.g., bullying, and aggressive behaviour). Consequently, this position led to behavioural management strategies for dealing with LLCD also being solely classroom focused (Bennett, 2017; Elton, 1989). Such classroom management strategies centre on a behaviourist approach, directly addressing the observable behavioural outcomes (Harold & Corcoran, 2013).

These strategies tend not to account for the complex underlying psychological processes which influence behaviour, instead replying on a "one size fits all" evaluation (Parker, Rose, & Gilbert, 2016, p.441). The present study identifies a gap in the literature and

aims to pioneer a holistic investigation of LLCD. The possible psychological and environmental antecedents from a wider perspective will be considered which is in keeping with the systematic approach to behaviour (Hart, 2010).

Unlike the behaviourist approach the systematic approach views behaviour as bidirectional, with the environment influencing behaviour and the behaviour influencing the environment and does not view the outcome of misbehaving as the primary problem (Daniels & Williams, 2000). The behaviour is seen as the outcome of one exchange in a series of interactions occurring within a set of concentric systems that surround the developing individual, including the classroom, the school, the family and the wider environment. Daniels and Williams (2000) explain that system interactions are ongoing with the pupil constantly striving to maintain a personal homeostatic state of psychological equilibrium, with any tension being reduced via a played-out behaviour. For example, a negative event occurring in the home system will affect the dynamics in the school system, with the individual presenting maladaptive classroom behaviour (Greenwood, Carta, Kamps, & Arreaga-Mayer, 1990). Thus, any change in any system will affect consequential behaviour being observable in the classroom. In keeping with the systematic view Bronfenbrenner's Process–Person–Context–Time Model (PPCTM: 1995) considers the external influences, the internal responses and the interdependence of both on behaviour. This model of influence was utilised to guide the present research (Figure 1).

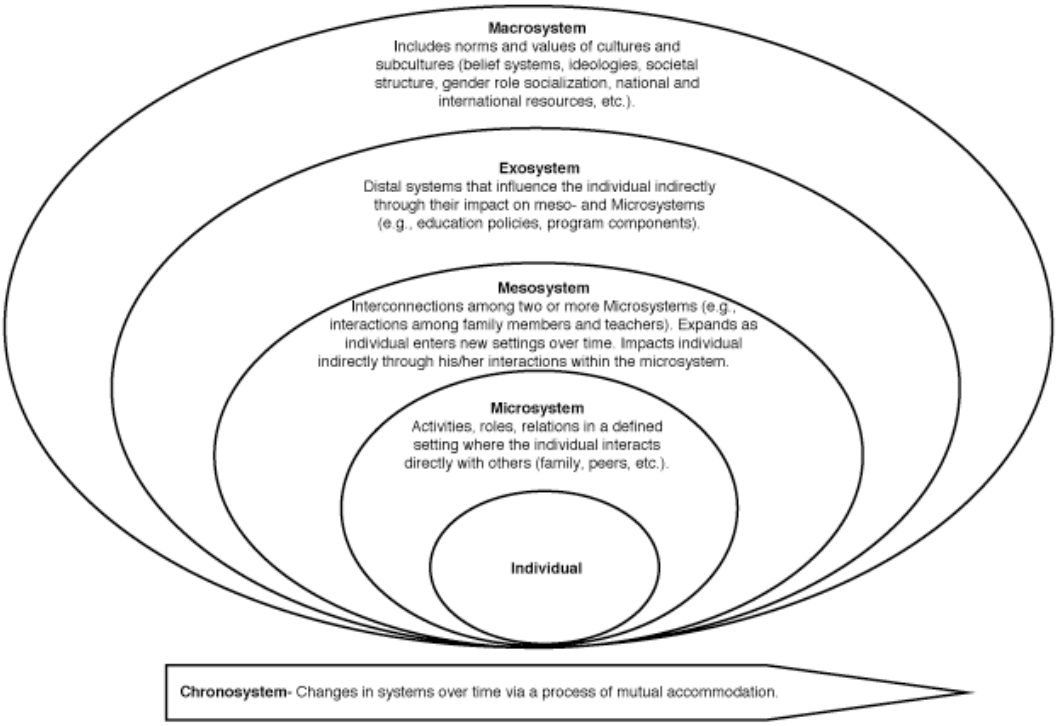

Figure 1.Visual representation of Bronfenbrenner's Person, Process, Context, Time Model (Montecarlo, 2015).

Process–Person–Context–Time Model

Bronfenbrenner's PPCTM (1995) provides a valuable lens for examining the developmental processes in the presentation of preadolescent LLCD. The model consists of four concepts: process, person, context and time. Bronfenbrenner (1995) stated that for a research project to truly qualify in using the PPCTM all four components of the model must be simultaneous incorporated. Each of the four components will now be explained in detail with reference to the present study and visually represented in figure 2.

Process.

Bronfenbrenner and Morris (1998) state that an individual's development takes place "through processes of progressively more complex reciprocal interactions between an active, evolving bio-psychological human organism and the persons, objects, and symbols in its immediate external environment" (p.996). These interactions must endure over time and on a

regular basis, exacting or distorting development with the principal reason being to aid adaptive psychological development of the individual (Bronfenbrenner & Ceci, 1994). Proximal processes are the primary mechanism for development with these interactions occurring closest to the child (Bronfenbrenner & Morris, 1998), examples include: child-child play or child-parent attachment. Distal processes tend to be of an indirect nature and include examples such as family socioeconomic status occurring outside of the child's direct proximity (Krishnan, 2010). For the present study the external environmental proximal and distal process interaction measured included home chaos, parenting practices, television in bedroom, screen time, sleep, extra-curricular activity, parents' weekly screen time and socioeconomic status.

Person.

The bio-psychological characteristics between individuals differ widely. Therefore, the susceptibility to external conditions and influences will also differ widely between individuals. Bronfenbrenner (1995) states that to uncover which individuals are/are not affected by a particular process interaction the systematic variations in the person must be considered. He identifies three types of person characteristics: demand, resource and force characteristics. Firstly, demand characteristics are set processes that do not typically amend to change such as age, gender and physical appearance. These characteristics are seen as external and influence initial interactions, typically formed by preconceived expectations. For example, it may be expected that male pupils (gender being the demand characteristic) would be more interested than their female peers in a car mechanics workshop course, therefore information leaflets for this particular course would be more likely to be distributed to the male pupils than the female pupils. Secondly, resource characteristics (unlike those from the demand type) are subject to change over time and maturation and are not immediately obvious to others. These are related to an individual's mental and emotional resources.

Finally, force characteristics are related to motivation and temperament. Bronfenbrenner (1995) indicates that an individual's person characteristics play an important role in changing the impact of contextual influences on their developmental outcomes.

Demand characteristics are viewed as having a passive role in the outcome, with changes occurring due to how others react differently to the individual based on first impressions. The present study included the demand characteristic of gender. Resource characteristics are viewed as the person having a more active role in changing the environment due to their mental or emotional states. For the current study executive function and proneness to boredom are included as a resource variable. Force characteristics are the most active and are linked to an individual's desire to change the environment, the present study included resistance to peer pressure.

Context.

The context or the environment comprises five concentric systems with the developing individual placed in the middle (Bronfenbrenner, 1977). The systems are organised in order according to the degree of proximity of the interaction to the individual, with the most direct proximal processes occurring with the microsystem and mesosystem moving outwards to the indirect distal interactions occurring within the outer systems, namely the exosystem, the macrosystem and the chronosystem.

The microsystem is the environment immediate to the developing individual such as, home, school and friendship groups. This is where the individual will spend the most time experiencing direct interactions with others and activities. The present study includes investigation of the home and the school microsystems with the variables of home chaos, parenting practices, television in bedroom, screen time, sleep and extra-curricular activity. The mesosystem contains the interrelationships or connections between two or more microsystems, each of which contain the developing individual. The present study includes

the mesosystem interaction between the pupils in school and the teachers' beliefs and attitudes in school. The teacher is potentially influencing and being influenced by the pupils' presentation of LLCD. The exosystem pertains to the interaction of contexts, one of which does not contain the child but which will have an indirect influence on them. For the present study, this includes parents' use of screen time and the family socioeconomic status. The child will spend no time participating in these directly but they will have a distal effect on the parents' interaction with the child.

Seen as the societal blueprint that determines social structures and activities the macrosystem envelops all the other interactive layers influencing and being influenced by them (Bronfenbrenner, 1995). These influences must be apparent in one or more of the developing individuals' microsystems. In the present study the overarching microsystem relates to the societal influences of the school behaviour policies. Lastly, is the chronosystem, as shown in figures 1 and 2. Bronfenbrenner (1998) states the chronosystem accounts for changes over time which affects the interactions within other systems. In the PPCTM this system is represented by the *time* element and was further divided into three aspects, each now described (Bronfenbrenner, 1995).

Time.

Tudge, Mokrova, Hatfield, and Karnik (2009) state that time, as well as timing is of equal importance as all aspects of the PPCTM can be thought of in relation to constancy and change over time. This is further explained by Bronfenbrenner and Morris (1998) dividing the *time* element of the PPCTM into three aspects. The present study considers all three elements of time and will be further highlighted throughout the thesis. First, the proximal processes that are investigated in the present study infer micro-time. Micro-time describes time pertaining to the specific activities or interaction that influence behaviour.

Second, the repeated measures aspect of the present study supports meso-time. Meso-time refers to the extent to which specific activities or interactions occur in a developing individual's environments, over a period of days, weeks or years. Third, macro-time represents the historical change of events over a prolonged period of time that can shift cultural factors. The macro-time representation in the present study is twofold. First, is generational, where both the pupil and parents in the current samples are classed as part of the 'net' generation (Oblinger & Oblinger, 2005) having been born into and raised in a world embedded in technology. Second is chronological, including literature that highlighted the changes that have occurred over the 30-year period considered in this thesis. These include classroom management of low-level classroom disruption, the introduction of the national curriculum and the introduction of inclusion (Whipple, Evans, & Maxwell, 2010).

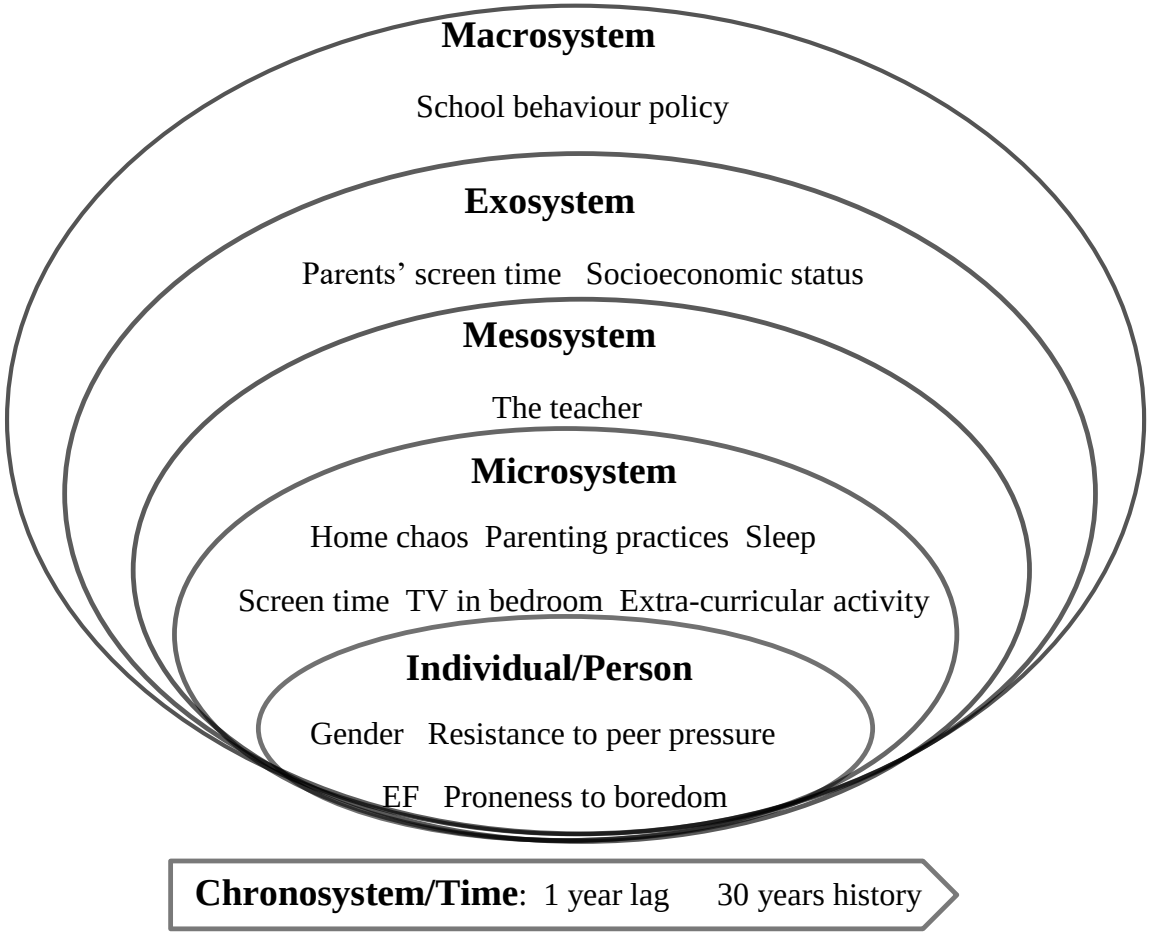

*Figure 2.*Visual representations of Present Study Variables in the Person, Process, Context, Time, Model.

The Overarching Research Questions

The present study has four primary research questions to address. First, synchronous quantitative data is gathered and explored in order to make inferences about the possible antecedents of LLCD. This is presented in Chapter 5 and addresses the first overarching research question. Second, by conducting and reporting on repeated measures data, with the time lapse of a year, patterns of directional interrelationship and interaction can emerge. This is presented in Chapter 6 and addresses the second overarching research question. Furthermore, this two-point data collection enabled the investigation of stability or change in relation to the Key Stage Two samples' presentation of LLCD. This is further addressed in Chapter 6 and addresses the third overarching research question. Lastly, previous research has presented teachers perception of the impact of LLCD (Ofsted, 2014). This study looked to build on the previous research and provide a contemporary account of LLCD from the experiences and perceptions of teachers. These findings presented in Chapter 7 address the final overarching research question.

1. What are the proximal and distal influences of low-level classroom disruption?
2. What are the directions of influence between LLCD and the investigated variables?
3. What is the stability or change of low-level disruption in the classroom over time?
4. What is the teachers' perception of the impact low-level classroom disruption having for teachers and pupils?

Overview of the Thesis

Chapter 2 proceeds with an account of the inclusion of low-level classroom disruption in educational inclusion of LLCD over the past 30 years, making reference to the fundamental reports that have included discussions of LLCD. Highlighting the significance of

the present study, it is argued here that even though LLCD has been a constant concern for schools for many years no research has attempted to understand its underlying bio-ecological influences. This chapter, supported by the current empirical literature then sets out the impact that LLCD has on the classroom, specifically the teacher and the pupil.

Chapter 3 focuses on the literature surrounding LLCD. First, as LLCD has consistently been ambiguously defined in both educational and psychological papers (Bennett, 2017; Clunies-Ross, Little, & Kienhuis, 2008; Ofsted, 2014; Nash, Schlosser, & Scarr, 2016; Wallace, 2017), this chapter sets out a presentation of literature that provides a clear definition LLCD. Next, guided by the PPCTM (Bronfenbrenner, 1995) the literature is presented for the inclusion for each of the investigated potential antecedents of LLCD. The set of variables are as follows: individual person factors (e.g. gender, resistance to peer pressure, proneness to boredom, executive function), factors in context; microsystem (e.g. home chaos, parenting practices, and television in bedroom, screen time, sleep, and extra-curricular activity), mesosystem (e.g. the teacher), exosystem (e.g. parents' screen time and socioeconomic status) and macrosystem (e.g. School behaviour policy). Lastly, the literature will be considered in relation to the current study laying a foundation to expand upon in this current thesis and providing hypotheses in respect of the four overarching research questions.

Chapter 4 describes the design approaches and methodologies for this mixed methods thesis. First, a brief overview of the study is presented. Second, the researcher's role gives an account of the thought processes, assumptions and decision making that has evolved both before and during the research process. Third, the chapter outlines the rationale for using a mixed methods design including the choice of the guiding paradigm and consequential methodologies and a visual representation of the procedure. Lastly, the quantitative and qualitative strands are explained, including details of participants, measures, ethical considerations and procedure.

Chapter 5 reports on the quantitative data collected at time one (T1). The data was collected via a battery of questionnaires and tasks with a sample of Key Stage Two children (*N*=274, 8-10years) and from questionnaire data from the parent/guardian sub-sample (*N*= 58). Preliminary analysis including cleaning and screening of data and descriptive reports is presented. Then the inferential results are reported, including bivariate correlations, multiple regression models and path models. This chapter concludes with a summary of the findings.

Chapter 6 reports on the quantitative data collected at time point 2 (T2). The data was collected via a battery of questionnaires and tasks with a sample of Key Stage Two children from 3 schools in the South East of England (*N*=249, 9-11years) and from questionnaire data from the children's parent/guardian sub-sample (*N*= 34). Preliminary analysis is once again presented, including cleaning and screening of the data and descriptive data reports. This chapter further include analyses of participant attrition from T1 to T2. The inferential results are then presented consisting of bivariate correlations and multiple regressions model. Lastly, the data from T1 and T2 is merged to address the repeated measures research question.

Chapter 7 reports on the qualitative data collected via semi-structured interviews with a cohort of teaching staff (*N*=8). This was collected to provide a contemporary real life view of LLCD from the perspective of teachers (Creswell & Plano Clark, 2007). This chapter includes the plan for analyse, followed by the reporting of the themes and sub-themes that were extracted from the data. Lastly, a summary is presented integration discussion of T1and T2 quantitative and the qualitative data with reference to the PPCTM (Bronfenbrenner, 1995).

Chapter 8 presents an overview of the research regarding the investigated concept of low-level classroom disruption. A brief summary of the theoretical background and the aims of the research are presented. Discussions of the mixed methods integration are then presented, highlighting the key findings. This includes the delineation of the results from the

investigation of the bioecological antecedents of low-level classroom disruption and the presentation of findings highlighting the impact of low-level classroom disruption on the teacher and the pupil including future research avenues. This is followed by the study limitations, the theoretical implications and then the practical implications of the findings. Lastly, concluding comments are made.

Chapter 2: The Context and Impact of Low-Level Classroom Disruption

This chapter reviews the educational inclusion of low-level classroom disruption over the past 30 years, with reference to the fundamental reports that have included discussions of LLCD. Following this, the literature highlighting the impact of LLCD to the principle persons involved (i.e. the teacher and the pupil) is provided.

The Context of Low-level Classroom Disruption in Education

Paradoxically one of the initial and fundamental modern day recognitions of LLCD came in 1987 sparked by media reports of the growing violence and aggressive misconduct in schools across England. The Daily Express presented the results of a classroom behaviour survey carried out in association with the Professional Association of Teachers (PAT), reporting that, of those surveyed half believed that the level of violence and unruly behaviour in UK classrooms was on the increase (Elton, 1989). Furthermore, 1 in 3 teachers surveyed reported a personal experience of being involved in a physical attack by a pupil (Merrett & Wheldall, 1990). This troubling report drove the PAT to request that Kenneth Baker, the [then] Secretary of State for Education commission a public inquiry into the state of behaviour in the country's schools. The Committee of Enquiry into Discipline in Schools was created to investigate these claims and to make recommendations for how an orderly atmosphere in the classroom can be procured. Subsequently, and informed by the results of a national survey of over 400 schools and 3,500 teachers, the highly influential Elton Report- *Discipline in Schools* (1989) was published, which remains today the blue-print for classroom management in schools across England.

From the outset, The Elton committee (1989) doubted the media coverage that higher-level disruption was rife and cited contemporaneous research by Houghton et al. (1988). This research, conducted with secondary school teachers found that it was not, as had been

suggested in the media, higher-level disruption that was causing most concerns but rather behaviours associated with LLCD that was being reported as the most troublesome disciplinary problem. Similar results had also been found for primary schools, with 46% of the teachers asked citing *talking out of turn* as the most troublesome act, followed by 25% stating *hindering other children* (Merrett & Wheldall, 1984). With consideration of this research The Elton Report (1989) determined that it would be beneficial to divide classroom indiscipline into a range of escalating pupil behaviours separated as; physical aggression, verbal outbursts and minor indiscipline. Minor indiscipline was defined as low-level classroom disruption, a construct to be investigated and considered separately.

The report declared that if the central behaviour problem was found to be LLCD then the fundamental aim of the report would be to deal with this (Elton, 1989). The Elton Committee undertook a mixed method project with a quantitative survey of 3,500 teachers and 100 qualitative teacher interviews. The quantitative data was supportive of the previous evidence (Houghton et al., 1988) with the majority of teachers rating the cumulative effects of persistent LLCD as their number one behavioural concern. Qualitative findings further added reliability to this, concluding that having to routinely deal with LLCD was the cause of mounting feelings of stress and frustration for the teachers.

Looking towards positive outcomes the report concluded, “No pupil is an island” (Elton, 1989, p.64). In a similar tone to Bronfenbrenner’s PPCTM (1995) they recognised the pupil at the centre of a wide range of reciprocal interactions between the individual children in the contexts of their multiple environments. Further to this, they produced a visual presentation (Figure 3), referring to the pupils’ own characteristics, the school, the teacher, the home, parental responsibility, media influences and governmental and local authority responsibilities. However, while The Elton Report (1989) did acknowledge these multiple

and interactional behavioural influences, disparities exist between this view and the report's final recommendation specifically in regards to LLCD.

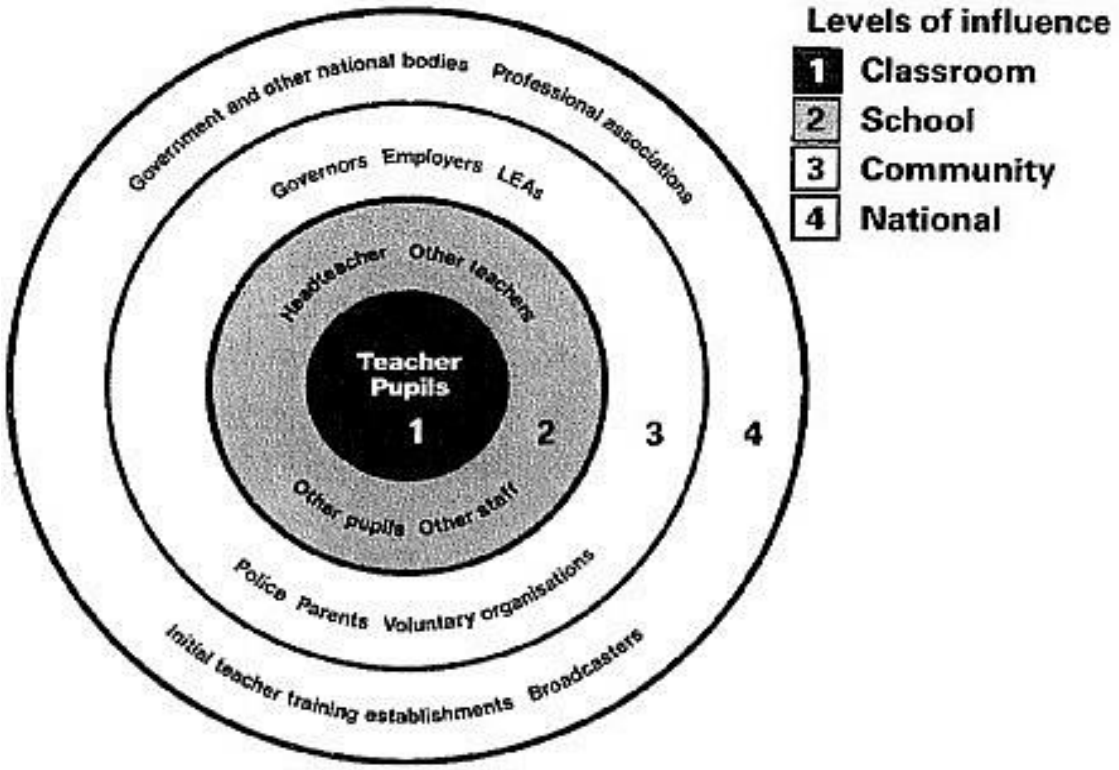

*Figure 3.*Elton Report Model of Behavioural Influences (1989, p. 65)**.**

The final recommendations evidenced observations made whilst carrying out school visits, that schools existing in very similar external locations could have very different internal atmospheres and different levels of indiscipline. The report cited research from Rutter (1979) suggesting that a successful school could overcome the negative effects of a pupil's economic or social disadvantage. Furthermore, the report implied that some schools were more effective at managing behaviour than other schools, regardless of outside influences. With the realisation that to holistically tackle classroom indiscipline was "futile" (Elton, 1989, p.13), the emphasis of the report moved away from wider contextual influences and recommendations were placed firmly within the school context.

The Elton Report pioneered the implementation of a Whole School Approach to behaviour management. The central premise of this approach was that behaviour conducive to effective teaching and learning would only be achievable if led by a strong head teacher and with positive input coming from the whole school community: pupils, parents and school staff. Working together this community would establish and uphold expectations of behaviour, thus creating a cohesive, collectivist school culture implementing positive behavioural expectations (Haydn, Stephen, Arthur, & Hunt, 2014; Merrett & Wheldall, 1990). In regards to certain higher level disruptive behaviours, such as bullying research has reported the success of the whole school approach. A successful example of a whole school intervention is The Beat Bullying campaign (Banerjee, Robinson, & Smalley, 2010).

This campaign instigated peer mentors in UK secondary schools, to whom victims of bullying could confide and seek assistance. Positive results suggested that pupils developed a more anti-bullying attitude. This attitude towards bullying was found to be associated with a school wide increase in reports of bullying and a subsequent overall reduction in bullying behaviour. Moreover, this addition to the existing bullying policy of some schools was

observed as positively affecting the overall ethos of the school (Banerjee et al., 2010). Likewise, a similar successful application of the whole school approach to bullying has been reported by the KiVa programme (Salmivalli, Kärnä, & Poskiparta, 2010). This programme combines consistent actions to deal with bullying and a whole school intervention to prevent bullying. Again, by teachers instructing anti-bullying attitudes and encouraging influential bystander behaviours amongst the pupil peer groups overall bullying behaviours decreased (Saarento, Garandeau, & Salmivalli, 2015).

Whole school strategies for behaviour management have been found to be effective at tackling higher-level disruption. However, historically LLCD has been viewed as a construct that is manageable at the classroom level solely the teacher. The Elton Report (1989) stated that teachers' group management skills were fundamental in achieving a good standard of classroom behaviour and that the assertive use of behaviourist based classroom management strategies should be effective at dealing with LLCD. The report further recommended that ongoing professional development would enhance teachers' core skill set of subject knowledge, up to date lesson planning and the ability to hold the pupils' attention (Elton, 1989).

It is worth noting here that as well as being urged to be "more effective classroom managers" (Elton, 1989, p.17), teachers were encouraged to adopt in their pastoral capacity a role as social mentors aiding the personal and social development of their pupils. The need to add to teaching duties with those of pastoral responsibilities became more apparent over the fore coming years. Just prior to The Elton Report (1989) the Educational Reform Act (DfES, 1988) had declared that whenever possible *most* children would benefit from mainstream schooling, including pupils with behavioural, social and emotional difficulties (DfE,1994).

The Elton Report (1989) recommendations seemed not to result in a subsidence of LLCD and by 2005 the [then] Chief Inspector of Schools; David Bell had once again raised

concerns over classroom behaviour. As had been carried out previously, a governmental committee was raised to investigate these concerns, led by Sir Alan Steer, the first governmental appointed *behavioural tsar*. The Practitioners' Group on School Behaviour and Discipline was established leading to the publication of The Steer Report -*Learning behaviour The Report of the Practitioners' Group on School Behaviour and Discipline* (2005).

In regards to LLCD, The Steer Report (2005) largely concurred with The Elton Report's (1989) two main findings, reiterating that LLCD was still the most common form of misbehaviour and that it continued to have a "wearing effect on staff" (p.5). In accordance with the previous report, acknowledgment was made of environmental influences. Adding that since The Elton Report (1989), "We recognise that schools now work in a very different world to that of 16 years ago. Changes in society have created new challenges" (p.5). Consequently, The Steer Report added insufficient sleep, lack of exercise, unhealthy diet and technology use (p.40) to the list of possible antecedents of classroom behaviours. However, these wider contextual acknowledgments were momentary and, as had happened with The Elton Report (1989) the emphasis was placed on the influence of the teacher within the classroom, declaring that if schools get the teaching and learning correct, then good behaviour will follow (Wilby, 2008). Any recognised antecedents to LLCD from outside of the school were disregarded with final recommendations raising issues such as staff development, bullying, and special education needs, all of which are important educational issues, however highlighting LLCD as being overlooked.

Aside from the parliamentary committees The Office for Standards in Education, Children's Services and Skills (Ofsted) also offered evidence of LLCD. Her Majesty's Chief Inspector of Schools (HMCI), Sir Michael Wilshaw, raised his own concerns specifically about LLCD. He suggested that LLCD was effecting the education of 700,000 pupils in

English schools (Ofsted, 2012). This led to Ofsted commissioning YouGov to carry out a survey and the damning report *Below the Radar: Low-Level Disruption in the Country's Classrooms* (2014) was published. Results from the YouGov survey were once again concordant with previous governmental findings (Elton, 1989; Steer, 2005), stating that 62% of primary school teachers reported LLCD as the fundamental negative factor impacting on their teaching time and the pupils learning time (Ofsted, 2014).

Ofsted concluded that, even though LLCD does not put children's safety at risk, pupils face "something of a lottery" (p.5) of being in a class that is orderly and where teaching can take place relatively uninterrupted and that LLCD had a detrimental effect on the progress of the pupils (Ofsted, 2014). Again, teachers reported that even though they felt confident in handling LLCD, the high prevalence and negative impact had become a daily challenge resulting in heighted stress levels. Ofsted (2014) warned that the persistent nature of LLCD could force teachers out of the profession. Nevertheless, in keeping with past reports LLCD was accounted to a lack of pupil engagement caused by inadequate teaching, stating that LLCD was an inevitable part of everyday life with any other potential influence ignored.

It is worth noting here that prior to his retirement as HMCI in 2016, Sir Michael Wilshaw (2016) made reference to "the failure to tackle LLCD in the classroom" (p.6) as an unaccomplished key mission of his that is still holding back education and requires urgent attention (Wilshaw, 2016). This major acknowledgment however seems ambiguous as he had earlier identified LLCD as a starting point for higher-level disruption by stating that, "If this low level stuff isn't tackled it becomes more serious and exclusions start to rise" (Sellgren, 2014). This statement compounded the view of LLCD as a facilitator to higher-level disruption and not as a behavioural concept in its own right.

However, the Ofsted (2014) report did seem to instigate a greater overall acknowledgment of LLCD. In June 2015, David Cameron's government appointed Tom Bennett as the new behaviour tsar for schools, to specifically investigate LLCD. Bennett declared that behaviour in schools had been neglected for several decades and that he would tackle LLCD referring to it as "the elephant in the classroom" (Bennett, 2014, para. 9). However, 4 months into Bennett's appointment his job remit had changed with the emphasis on LLCD dissipating. Bennett was now requested to investigate the general behaviours of the modern day classroom (Mason, 2015). This de-emphasis of LLCD can be seen in his most recent report, *Creating a Culture: How School Leaders can Optimise Behaviour* (Bennett, 2017).

The central premise of this campaign was to use classroom management strategies to reframe pupils' social norms. Important to this premise is that to promote a shift in classroom norms it is required that all the agents involved view the behaviour as abnormal. However, Bennett (2017) continued the previous patterns of dealing with behaviour. First he identified that an individual pupil's behaviour is a product of social and personal influences from beyond school into their wider bioecological systems. Second, followed by a dismissal of these influences, Bennett makes the endorsement that teachers should be addressing the more obvious extrinsic behavioural outcomes rather than trying to address the internal mental processes.

Similar to what had gone before (Elton, 1989; Steer, 2005; Taylor, 2016) recommendations followed that the creating of a classroom culture would be carried out by way of consistently implementing standardised routines that all pupils would follow and that would eventually become habitual and automatic. LLCD was recognised as part of this problem that:

> As any teacher will testify, it only takes a few disruptive students to derail an entire lesson. Disruptive behaviour does not need to be extreme such as fighting to cause real problems, low-level disruption for example; repetitive whispering can also prove toxic to a calm classroom (Bennett, 2017, p.22).

However, as with previous governmental and educational reports LLCD was described as "intermittent" (Bennett, 2017, p.14) and as a "catalyst" to the higher more serious misbehaviours (Bennett, 2017, p.45).

The Impact of Low-Level Classroom Disruption on Teachers and Pupils

The present study regards the *person* element of the PPCTM (Bronfenbrenner, 1995) as a twofold concept; as the individual characteristics of the *person* such as the impact on self-esteem or gender and the *person* as a whole, such as the general impact on being a teacher or a pupil. The following literature presents on the impact that LLCD has on the *persons* of significance as a whole, i.e. the teacher and the pupil.

The teacher.

In primary schools, the repetitive occurrence of low-level classroom disruption not only interrupts teaching but has also been shown to have a wearing and stressful effect on the teacher (Ofsted, 2005; Scott, Hirn, & Alter, 2014; Wheldall & Merrett, 1988; Wheldall, 1991). Research has shown that while higher-level disruption contributes to work place stress, LLCD has been repeatedly named as the primary behaviour issue in schools (Griffith, Steptoe, Cropley, 1999; Halstead & Jiamei, 2009; Houghton, Wheldall & Merrett, 1988; Ofsted, 2005). Furthermore, a recent survey from The National Association of Schoolmasters Union of Women Teachers (NASUWT) claims that 81% of the 11,000 teachers, who took part, believed that LLCD was an issue in the classroom that they taught (NASUWT, March 2017).

Stress.

Typically, higher-level disruption in the classroom is dealt with by application of the school behavioural policy. This involves the removal of the perpetrating pupil from the classroom and the interruption to teaching and learning typically subsides. However, LLCD has been traditionally viewed as behaviour controllable by the teacher at classroom level. The influential Elton Report (1989) declared that teachers that have effective classroom management skills are the key to reducing LLCD (Elton, 1989), adding that those teachers who could not fulfil this requirement would be viewed as "incompetent" and should be dismissed (Elton, 1989, p.176). More recently, Ofsted (2014) declared that good teachers who are respected and liked by their pupils are capable of managing LLCD. Additionally, Ofsted (2014) declared some teachers were personally responsible for problems with behaviour, as they have accepted LLCD as part of the dynamics in their classroom. Teachers have consistently been made the LLCD "scape-goats" (Otero López, Santiago, Godás, Castro, Villardefrancos, & Ponte, 2008, p.261).

Even though teachers have conveyed their anxiety and frustration over the struggle with incidents of such behaviour they have reported that they feel confident in handling LLCD (Arbuckle & Little, 2004; Ofsted, 2014), having learnt to tolerate it by developing coping mechanisms (Sherman & Cormier, 1974). Additionally, research has indicated that some teachers choose to ignore incidents of LLCD as a way of limiting the interruption on the classroom (Edlounge, 2015; Ofsted, 2014). Ofsted (2014) have concurred with this, reporting that a fifth of teachers they surveyed carried out the ignoring technique for dealing with LLCD. Problematically ignoring is a solution not advised for combating LLCD. Research has suggested that by not directly addressing an act of LLCD the teacher will in fact exacerbate further occurrences taking place (Chang, 2013; Brady, Forton, & Porter, 2012). Furthermore, it has been suggested that for some teachers these feeling of stress are

compounded. Some perceive that the remoteness of senior staff from the classroom has resulted in a lack of understanding about the impact that LLCD has on the daily teaching and learning (Ofsted, 2014). Thus, the high prevalence and persistence of LLCD has a daily impact on the classroom, suggested as heightening the teachers' workplace stress as they try to teach over the top of the constant noise that it creates (Ofsted, 2014).

Burnout.

Importantly, it has been identified that having responsibilities that seem out of their control such as managing LLCD are a possible predictor of teachers' professional burnout (Kerr & Valenti, 2009). Burnout is an umbrella term inferring the negative consequences that may occur in a work place due to a loss of enthusiasm and idealism in a profession (Freudenberger, 1974). Typically, burnout will present as physical and psychological symptoms such as emotional exhaustion (Blasé, 1986), lower morale (Maslach, Schaufeli, & Leiter, 2001) and maladaptive self-efficacy (Brouwers & Tomic, 2000). A multivariate meta-analysis of pupil misbehaviour and teacher burnout carried out by Aloe et al. (2014) found that all three of the most prevalent dimensions of burnout; emotional exhaustion, personal accomplishment and depersonalisation were significantly related to classroom misbehaviour. The final 19 studies found, the dimension of emotional exhaustion to have the largest effect size in relation to classroom behaviour.

A further study by Skaalvik and Skaalvik (2011) looked at behaviours conducive to LLCD and found a significant correlation between teachers' perceived negativity specifically towards classroom behaviour and feeling of emotional exhaustion. They surveyed a large sample of teachers from 127 Norwegian elementary and middle schools to report on various school context variables and their personal feelings about various aspects of teaching. Results suggested that discipline problems associated with LLCD, that interrupted teaching were directly associated with the teachers' emotional exhaustion. Furthermore, these researchers

later reported teacher stress being associated with burnout positively associated with higher teacher attrition.

The pupil.

An effective education is thought to fundamentally influence the outcome of an individual's life, being associated with better employment prospects, consequentially bringing a better standard of living, leading to better physical and psychological health and so potentially a longer healthier life span (Wehmeyer et al., 2012). The repetitive nature of LLCD is not conducive to an effective education upsetting the teaching and learning time in a classroom influencing the academic achievement of the class as a whole (Bennett, 2017).

Learning time.

The amount of hours of learning being lost through incidences of LLCD is of major concern with teachers having to stop instruction to spend time policing these interruptions (Halstead & Jiamei, 2009). Ofsted (2014) suggested that the lost learning time could amount to an hour a day or 38 school days a year for some pupils. These interruptions to teaching and learning are not only of significance for the perpetrator's academic success but also to his/her peers. Some of the externalising behaviours associated with LLCD such as tapping a pen or humming have been described as impulsive and unconscious (Esturgo-Deu & Sala-Roca, 2010; Tennant, 2004). These types of behaviours may cause minimal disturbance to the perpetrator but to their peers these could be highly distracting, interrupting attention and thus disrupting learning patterns (Duncan et al, 2007). Research has shown this to be the case; Zamorski and Haydn (2002) surveyed pupils asking them to describe the things that most 'put you off' whilst in the classroom. Most responses related to poor classroom behaviour from their peers, citing such actions as "other people disrupting, wasting time for our education and pupils mucking around" (p.42).

Robust longitudinal repeated measures evidence has also upheld these concerns over interruptions to academic attention and the consequences for a pupil's ability to stay on task. A six-time point longitudinal childhood study looked at a range of elements associated with school readiness with later reading and maths achievements within a normative population (Duncan et al., 2007). It was found, controlling for prior levels of academic skills, that the ability to sustain attention at 5-6 years was one of the strongest predictors of later achievements at age 11-12 in both reading and maths. These results were similar for boys and girls and for children from high and low SES backgrounds (Duncan et al., 2007).

Additionally, research has suggested inconsistencies in teaching staff can also lead to a negative relationship occurring between LLCD and a pupil's learning time. A meta-analysis from Aloe, Amo and Shanahan (2014) found that LLCD can decrease pupils' learning time due to teacher absentees, as supply teachers will be bought in to cover vacancies. Due to the unfamiliarity of specific schools, pupils and school rules (Reupert & Woodcock, 2010) supply teachers can have low self-efficacy (Bandura, 1977), doubting their own personal and professional capacity to deal with misbehaviour. This can foster the occurrences of LLCD further limiting the teaching and learning time. The Department for Education (2016) reported 920 teacher vacancies across England and a further 3280 posts being covered by temporary staff. These figures are supported by The National Union of Teachers (NUT; 2015) who found 73% of head teachers were experiencing recruitment issues. High use of temporary and supply staff may well be adding to the existing influences and causes of LLCD, in turn have lasting effects on academic achievement.

Academic achievement.

A reduction in teaching time caused by the management of LLCD may lead to a maladaptive classroom climate which in turn can have a detrimental effect on pupils' academic achievement. A positive classroom climate has been linked with pupils' self-

efficacy, a pupil's perception of the reasons and purposes to engage in academic tasks (McMahon, Wernsman, & Rose, 2009). Research suggests that if a classroom climate is perceived by the pupil as non-supportive their motivation to learn will diminish (Bandura & Wessels, 1997) leading to increased off-task behaviours, affecting academic achievement. This was found to be the case for a middle school sample of pupils where classroom climate significantly predicted pupils' self-efficacy and academic achievement (Hardré, Crowson, Debacker, & White, 2007). Head teachers have recognised this connection, in a report specifically levelled at LLCD management it was claimed that one of the biggest causes of LLCD is a pupil developing an apathetic attitude to learning (Edlounge, 2015).

Furthermore, it has been suggested that this relationship between a disruptive classroom environment, poor attitude, off-task behaviour and decreased academic success has consequences that continue through the life span. A longitudinal study by Breslau and colleagues (2009) extending to early adulthood found this behaviour trend. The study looked separately at internalising, externalising and attentional behaviours, and each was found to be significant negative predictor of academic outcome at age 17 (after controlling for family factors such as socioeconomic status, maternal education and maternal marital status at time of child's birth and IQ). However, when multiple regression techniques were applied attentional problems were found to be the only predictor of this negative relationship with academic achievement. Conclusions were inferred that of the three behaviour issues it was attention problems that have the largest influence over and above internalising and externalising issues (Breslau et al, 2009).

Summary

To summarise, this chapter presented the literature inferring that over the last 30 years policy makers have acknowledged low-level classroom disruption and have consistently expressed concerns about this type of indiscipline, recognising LLCD as the fundamental

behaviour issue in primary (and secondary) schools. Furthermore, this chapter highlighted the impact that LLCD has within the classroom on both the teacher and the pupil. However, LLCD has been consistently regarded as a mainstream classroom construct, manageable by classroom teachers and has been overlooked as a concept with policy recommendations tending to concentrate on higher-level disruption. This has led to the overlooking of the wider bio-ecological factors of low-level classroom disruption. The current study now presents the literature highlighting the investigated factors of low-level classroom disruption.

Chapter 3: Review of the Literature

This chapter summarises the relevant literature associated with low-level classroom disruption. Due to the acknowledgment of the ambiguous nature of LLCD, the first section provides relevant literature and a clear definition of LLCD. Guided by the PPCTM (Bronfenbrenner, 1995) the next section provides a review of the antecedents of LLCD. The set of variables are as follows: individual person factors (e.g. gender, resistance to peer pressure, proneness to boredom, executive function), factors in context; microsystem (e.g. home chaos, parenting practices, and television in bedroom, screen time, sleep, and extra-curricular activity), mesosystem (e.g. the teacher), exosystem (e.g. parents' screen time and socioeconomic status) and macrosystem (School behaviour policy). Lastly, the literature will be considered in relation to the current study laying a foundation to expand upon in this current thesis and providing hypotheses in respect of the four overarching research questions. Due to the lack of empirical evidence specifically concerning LLCD, studies and reports are included if the behaviour being investigated resembles the factors of LLCD.

Defining Low-Level Classroom Disruption

The literature review revealed a small selection of research naming low-level classroom disruption specifically (Dursley & Betts, 2015; Haydn et al., 2014; Jones & Smith, 2004; Kreisberg, 2017; Sullivan et al., 2014; Woods, 2008). However, it became apparent the majority of research rather than stating certain behaviours as LLCD offered ambiguous descriptive terms such as, "relatively minor" behaviours (Clunies-Rosset al., 2008, p.694), "sufficiently off task" behaviours (Nash, Schlosser, & Scarr, 2016, p.1) and "minor misdemeanours" (Halstead & Jiamei, 2009, p.143). Compounding these ambiguities of definition research and reports has inferred LLCD as being a catalyst to higher order indiscipline (Bennett, 2017; Ofsted, 2014; Wallace, 2017).

In a behaviour management pamphlet, Emeritus Professor of Education at Nottingham Trent University Susan Wallace (2017) describes LLCD as escalating into confrontational behaviour. This has also been the view of Ofsted implicating a snowball effect of LLCD, "If this low level stuff isn't tackled it becomes more serious and exclusions start to rise" (Sellgren, 2014, para.7) and The Steer Report (2004) inferred a need to take preventative action lessoning LLCD to help reduce exclusion. The present study includes a literature review of behaviour to provide a clear definition of LLCD by making observations of the differences in intensity, frequency and classroom affect from other behaviours often of a higher level.

Intensity.

In a typical classroom, a single act of LLCD such as talking to a peer or daydreaming can be viewed as being of low intensity or power, viewed as a minor misdemeanour (Halsted & Xiao, 2009; Sullivan et al., 2014). Furthermore, LLCD is often described as being innocuous and passive in nature (Beaman & Wheldall, 1997). Conversely, the intensity or power of a single act of higher-level disruption such as kicking or shouting at another presents as a high enough disturbance for the perpetrator to be excluded from the classroom (Hayden & Dunne, 2001). In addition, an act of higher-level behaviour is often described as being aggressive, non-compliant and extreme in nature (Wallace, 2017). Singularly, LLCD and acts of higher-level behaviours are dissimilar in intensity. Compounding this is the difference between the frequencies of presentation.

Frequency.

Qualitative accounts describe the frequency of LLCD as persistent (Bennett, 2017) and an ongoing challenge to teachers (Wallace, 2017). Conversely, higher-level disruption is commonly viewed as less frequent (Estutgo-Deu & Sala-Roca, 2010) and does not fashion such major concerns, as does LLCD for teachers. A study carried out by Estutgo-Deu and

Sala-Roca (2010) in Spain with primary pupils (aged 6-12) found that factors associated with LLCD such as unauthorised talking were most frequently presented in class (33%), while disruptions of a higher level such as personal confrontations were least frequent (12%). A study from Sullivan and colleagues in Australian schools found similar results (2014). They found that 50% of the teachers stated that LLCD factors (named as LLCD and disengaged behaviours-such as talking out of turn and mucking around) occurred several times a day. Whilst 93% of teachers reported higher-level disruption (named as aggressive and anti-social behaviours) did not occur at all.

Another study from Australia highlights similar frequency differences (Arbuckle & Little, 2004). This report defined the behaviours of LLCD under the term of "disruptive classroom behaviour" and highlighted the characteristics of LLCD as "an activity that causes distress for teachers, interrupts the learning process and leads the teachers to make continual comments to the student" (p. 60). By referencing the high frequency of interruptions, this study can be seen as inferring LLCD. However, the more general term of disruptive classroom behaviour used means that comparisons of future research with this research would be hard to carry out.

Impact.

Even though an incident of LLCD can be seen as passive or minor the teacher will suspend instruction time to carry out behaviour management. Ofsted (2014) reported that 20% of teachers identified these interruptions every lesson, amounting to up to an hour a day lost learning time for some pupils. Due to this high frequency of LLCD occurrence, these breaks in teaching and subsequent learning will have a significant effect on the whole class as a single learning unit (Hall & Hayden, 2007; Swinson, 2010). Although an infrequent episode of higher-level disruption played out at a high level of intensity (e.g., bullying or aggression) will again result in a suspension of instruction contrary to LLCD, the perpetrator will

typically be removed from the classroom and dealt with outside of the teaching and learning environment, thus potentially having impact only on those directly involved. Additionally, it may be that the removal of the pupil will have even less of an effect on the teaching and learning process due to the infrequent occurrence of higher-level classroom disruptions.

To summarise, a lack of a clear definition has led to issues and inconsistencies in how LLCD is measured. This was recognised in the Elton Report (1989), concluding with the caveat that "in the absence of national statistics the problem [LLCD] itself could not be directly measured. Any estimate would have to be based mainly on teachers' perceptions" (Elton, 1989, p.59). More recently, Tom Bennett (2017) has called for "a national standardised method for capturing data on school behaviour" (p.9) to record LLCD. A definition is therefore proposed. The empirical research supports the inference that the main characteristics of the components of LLCD are; low intensity, high frequency and upsetting the classroom as a whole learning unit. These qualifying criteria are in support of the Ofsted report- *below the radar* (2014). This report defines LLCD with the specific factors of calling out, disturbing other children, fidgeting and fiddling with equipment, talking and chatting, not getting on with work, purposely making noise to gain attention, answering back or questioning instructions and, swinging on chairs. The present study therefore refers to low-level classroom disruption as fitting with this set of three qualifying criteria and these behavioural exemplars.

Bio-Ecological Perspective-The Antecedents of Low-Level Classroom Disruption

A review of the literature regarding LLCD in the educational context and the subsequent impact to the persons directly involved in Chapter 2, and having established a working definition of LLCD has been carried out. Reviewing the literature will now continue by outlining the antecedents of LLCD. The current research identifies an individual existing

in a complex system of overlapping influences. The facets of Bronfenbrenner's (1995) process, person, context, and time model lend themselves to this literature review. Each facet is discussed and how they are integrated in the present study, proceeding with the *person* facet (Bronfenbrenner, 1995).

Person.

The aforementioned literature regarding the *person* as outlined in the section entitled *the impact of LLCD on the teachers and the pupil* considers the person (i.e. the teacher and the pupil) as a whole. This section of literature will now infer *person* as the individual characteristics of the person in relation to a developing individuals' presentation of LLCD. The PPCTM (Bronfenbrenner & Morris, 1998) divides the person into three types of characteristics, which were termed as demand, resource and force characteristics. Demand characteristics can be viewed as having a passive role in the outcome, with changes occurring due to how others react differently to the individual based on first impressions (Tudge et al., 2009). The present study includes the demand characteristic of gender. Resource characteristics are viewed as the person having a more active role in changing the environment due to their mental or emotional states, for the current study this includes executive function and proneness to boredom. Force characteristics are the most active and inked to an individual's desire to change the environment, for the present study will include resistance to peer pressure.

Gender.

Early in his work Bronfenbrenner wrote of gender stating that; "affiliative companionship, nurturance, principled discipline, affection, and affective reward appear to foster the emergence of leadership in sons but discourage it in daughters" (1961, p.256). Thus, this inferred influence from the social context of gender rather than from inherent qualities of gender. However, with the further development of the ecological systems theory and the introduction of the PPCTM (Bronfenbrenner, 1995) Bronfenbrenner acknowledged the biological dimension of the '*person*' and gender. He went on to postulate a pattern of gender development made up of three components; (1) shaping the environment, (2) evoking response and (3) react to these responses (Darling, 2007).

It is suggested that the Bronfenbrenner pattern of gender development is evident in the school context with the underlying mechanism of self-regulation helping to shape the environment. Female pupils have consistently been associated with a higher ability to regulate their behaviour than male pupils, with males associated with an inability to pay attention, act appropriately to different situations and resist distractions (Weis, Heikamp & Trommsdorff, 2013). Research has suggested that this gender difference is evident in the classroom with boys more likely to display externalising behaviours and girls, more likely to engage in more internalising behaviours (Silver, Measelle, Armstrong & Essex, 2005). Importantly for the present study is the association between externalising behaviours, which have been associated more with boys, and the closely related behaviours of LLCD such as fidgeting, rocking on chairs, calling out inappropriately and making noise.

Research found mixed results for a gender effect with LLCD. Quantitative research by Esturgo-Deu and Sala-Roca (2010) investigating behaviours conducive to LLCD reported a significant gender effects among a large sample of primary school children. Teachers

reported more males than females presenting externalising behaviours such as: interrupting class activities (16% vs 4%), speaking aloud at the wrong turn (17% vs 4%) and moving frequently (11% vs 5%) in class. Whereas a study looking at classroom management strategies found teachers perceived a similar male-female ratio for LLCD associated behaviours, such as keeping on task, talking to others, slow to start and getting out of seat (Clunies-Ross et al., 2008). It was further found that gender was specific only to the higher-level disruptive behaviours, with male presenting higher levels of disobedience and aggression than their female peers (Clunies-Ross at al., 2008).

These mixed results may be due to methodological differences. Both studies used a teacher's perception checklist to report levels of misbehaviour. However, the Esturgo-Deu and Sala-Roca (2010) study first drew upon a list from a review of the literature, while Clunies-Ross et al. (2008) created a checklist by combining the Child Behaviour Survey (Martin, Linfoot & Stephenson, 1999) with the Classroom Behaviour Problem Checklist (Wheldall & Marrett, 1998). This means that across studies teachers were rating a different combination of behaviours making cross-study comparisons difficult.

These gender specific behaviours can then be associated with part two of Bronfenbrenner's pattern of gender (1995), which suggests that an evoked response of gender stereotypes exists with the norms of society. This suggests that male pupils are stereotypically expected to externalise behaviour such as being over active and displaying inappropriate behaviours whereas females are expected to internalise behaviour and act quietly, in a controlled manner (Zahn-Waxler, 1993). This has been observed with teacher's perceptions of classroom behaviour following this trend of male pupils displaying more explicit acts of disobedience, compared to their female peers (Arbuckle & Little, 2004, Beaman, Wheldall & Kemp, 2007). Additionally, research has also suggested that teachers reinforce these

stereotypes with gender contingent classroom management strategies. Arbuckle and Little (2004) found that teacher response to a male pupil exhibiting gender stereotypical behaviours (such as disobedience or fidgeting) would be limited. Whereas, if a male pupil exhibited behaviours that were stereotypically female (such as crying, being fearful and sensitive) the teachers' response was found to be more purposeful (Kokkinos, Panayiotou & Davazoglou, 2004). Thus, a lack of classroom management may occur when male pupils present stereotypically behaviours associated with LLCD.

Kreisberg (2017) found this to be the case for LLCD in elementary school. Teachers perceived male pupils as presenting higher levels of LLCD than the female pupils, adding that for males these forms of misbehaviour were "just their nature" (p. 94). Interestingly, this gender stereotyping trend was found to be contingent on teaching experience. Kokkinos et al. (2004) reported that inexperienced 1st year student teachers tended to show gender bias in classroom management strategies; however, the more experienced 3rd year student teachers showed less. The researcher suggested that this difference in gender stereotypical views was due to teachers' gaining self-efficacy in handling disruption in the classroom with gender bias become less salient to experienced teachers (Hagen, Gutkin, Wilson, & Oats, 1998).

Lastly, to complete the gender paradigm, it has been suggested that these stereotypical gender trends mould the individual's reaction to these responses (Darling, 2007). Research suggests that male pupils self-report more disruptive behaviour compared to their female peers (Lewis, 2001), with the pupils' perception of seriousness identified as the underlying cause for differences in reporting. Dursley and Betts (2015) found male pupils who engaged more in acts of LLCD, perceived it to be less serious than their female peers, who engaged less in LLCD. Therefore, indicating that the act of self-reporting carries fewer stigmas for the male pupils than for the female pupils.

Executive function.

Executive function is defined as an individual's management system bringing cognitive processes together to fulfil the function of a long-term goal (Poland, Monks & Tsermentseli, 2015). Executive function is divided into two dimensions; 'hot' and 'cool' (Zelazo & Carlson, 2012). Hot executive function denotes an affective association to a situation, such as a personally meaningful consequence, whereas cool executive function refers to an individual's cognitive skills working in a neutral condition. Cool executive function includes working memory (the ability to store and reuse information), cognitive flexibility (the ability to switch perspectives) and inhibition (the ability to withhold an automatic response that is deemed inappropriate to the situation) (Poland, Monks & Tsermentseli, 2015). Anecdotal links have been made between self-regulation and LLCD, with Ofsted (2014) reporting that when teachers were asked to describe the presentation of LLCD, one stated that pupils displayed a lack of self-control.

The current study measures and investigates the dimensions associated with cool executive function as empirically these have been linked to problems with the construct of self-regulation, a process inferred to the presentation of LLCD. Comorbidity can also be an issue when examining executive function. Difficulties with executive function referred to as executive dysfunction can be a symptom of various congenital or acquired disorders and conditions in children including Turner's Syndrome, fragile X syndrome, autism, obsessive-compulsive disorder and in medical conditions such as insulin dependent diabetes mellitus (Salimpoor & Desrocher, 2006) and attention deficit hyperactivity disorder (Donders, 2002). It is thought that a pupil displaying behaviours similar to those of LLCD can often be masking executive dysfunction (Geddes, 2006) or vice versa. A pupil with undiagnosed executive dysfunction problems may be mistaken as just having a lack of motivation, laziness

or general misbehaviour in social settings such as in the classroom (Antrop, Roeyers, Oosterlaan, & Van Oost, 2002; Salimpoor & Desrocher, 2006).

Proneness to boredom.

Boredom is thought to be typically triggered by the lack of intrapersonal stimulation, challenge or meaning, in a given situation (Fahlman et al., 2009; Van Tilburg & Igou, 2011). Boredom is thought to differ from simply having a lack of interest in an event due to the unpleasant and sometimes hard to programme negative mental state that occurs (Eastwood, Frischen, Fenske & Smilek, 2012), whereas a lack of interest is thought to cause neutral emotions implying neither. Boredom typically results in a negative mental state which stimulates the individual into carrying out behaviour modification to alleviate this undesirable state of mind. These alternative stimulations can resemble the characteristics of LLCD as either physical movement of the body, such as fidgeting or rocking on a chair, or cognitive motivations such as daydreaming or humming (Struk,Carriere,Cheyne & Danckert, 2015). This presentation of boredom is in fitting with the model of situational or state boredom (Fisher, 1993).

State boredom is defined as a unidirectional process, cited by Bronfenbrenner (1974) as being a "two-person model" (p.3). An assumption of this model is that interactions exist in isolation from any additional social processes from any other contexts. Within the microsystem of the classroom, pupil boredom has been directly associated with teacher instructions and/or academic ability, with the term academic boredom sometimes being employed (Pekrun, Goetz, Titz, & Perry, 2002). Pupils experiencing boredom in the classroom is an issue that has been widely recognised across all levels of education and across cultures (Pekrun, Goetz, Daniels, Stupnisky & Perry, 2010). Surprisingly high levels of boredom have been reported amongst pupils, for example 44% of German middle school

pupils experienced boredom during lessons (Daschman, Goetz & Stupnisky, 2011), 58% of UK university students reported that over half their lectures were boring (Mann & Robinson,2009) and 40% of American middle school pupils believed their classwork was boring (Larson & Richards, 1991). Therefore, state boredom is of great importance to educators for, informing classroom management interventions (Dweck & Leggett, 1988; Hester & Ligon, 1978; Patrick, Skinner & Connell, 1993).

Concerns regarding the prevalence and generalisation of state boredom have given rise to research suggesting a fundamental relationship between state boredom and negative academic outcomes. Tze, Daniels and Klassen (2015) conducted a meta-analysis and found a significant association between state boredom and poor academic outcomes, concluding that even with a relatively small effect size (d=.10) the accumulative effect of state boredom over time would have lasting detrimental effects on academic outcomes. Research has suggested that a monotonous atmosphere is a common antecedent of boredom in the classroom, whereby the teacher, or subject topics, fails to engage the pupil fully (Robinson, 1975). This was the view of educational advisors for the government, who laid the central responsibility for boredom within the classroom directly on the teachers (Elton, 1989). As a result, they made recommendations that teachers should be able to alleviate boredom among their pupils by applying the principles of good classroom management (Elton, 1989).

Another common factor found to induce state boredom in the classroom is interruptions to the proceedings. These interruptions have been categorised as planned or unplanned (Lysiak, 1980), distracting the pupil, intruding on their attention, leading to boredom and the seeking out the alternative motivators (Dursley & Betts, 2015). Hester and Ligon (1978) undertook a large-scale study in Austin, USA to investigate interruptions in schools. They found that up to 50% of a typical school day was being lost to interruptions. By

taking actions to reduce the *planned* interruptions (e.g. assemblies or break times) the schools successfully reclaimed an average of 24 mins of teaching a day, which translates to 16 full school days over an academic year. These results were encouraging, however *unplanned* interruptions by their nature were found to be more difficult to rectify. As the name infers, these occur unannounced and are therefore harder to tackle proactively. Problematically, LLCD has been cited as an unplanned interruption to the teaching and learning.

Resistance to peer pressure.

It is suggested that during adolescence (12-19 years) the influence of peers increases sharply (Steinberg & Monahan, 2007) with the individual entering a developmental period where social influence shift from being centred around parents and family towards friendship groups in which peers are thought to play a large role influencing behaviours (Youniss & Smollar, 1985, Kerr, Stattin & Ozdemir, 2012). The present study sample (8-11 years) falls just under the period of adolescence, however this can still be regarded as an important time of peer influence within a classroom. Irrespective of the pupils' age, the classroom setting can be described as a social network, a relevant social system of individuals who directly interact and use each other's behaviours as reference points for their own (Kobus, 2003). A typical key stage two classroom is suggested as having a social system of up to 25 children influencing each other (Paton, 2014).

According to Social Learning Theory (SLT) individuals will learn the social behaviours in a classroom from influential peers, which can be in both a positive and negative way (Bandura, 1986). These behavioural displays are common forms of peer influence through which pupils are thought to acquire a set of social norms relevant to a context, in this case the classroom. It is suggested that these classroom norms will in turn guide approval and acceptance of how they ought to behave in said context. Further to this, Banerjee and Dittmar

(2008) have suggested that children will include certain behaviours as part of their peer cultures due to the differential value that these behaviours may hold for adults in that environment.

Woods (2008) found this to be the case at primary level school. A male pupil stated that in the playground the rebelling act of hitting another pupil could elicit respect from his peers. However, the problem comes when this behaviour is then transferred into the classroom context; whereby hitting another pupil could and should elicit a sanction from the teacher. Woods (2008) concluded that for the pupil to conform to the school rules would mean a reduction in his peer status. Thus, he could decide to risk getting a sanction in the classroom rather than losing credibility amongst peers. The male pupil summarises this as "if you want respect miss you have to earn it" (p.191). This research infers that the pupil recognised the difference between what is acceptable behaviour and what is not acceptable, depending on the context.

Some research has suggested that the persistent and frequent nature of LLCD has contributed to a macro-time model of the historical shifting of normative behaviour, whereby LLCD has become an accepted classroom norm (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984). Primarily a behavioural display of LLCD by one pupil may have induced cognitive dissonance (Festinger, 1962) in other pupils, explained as an "uncomfortable inner state that comes forth as a result of inconsistences between a person's actions, beliefs, attitudes and feelings" (Leenders & Brugman, 2005, p.67). However, the increasing prevalence of LLCD promoting cognitive dissonance could be seen as motivating an individual to reduce these negative feelings by re-interpreting or reframing their own behaviour. Over time, the resistance to a violation of the social norms in a classroom could be

weakened, possibly resulting in increasing numbers of pupils presenting LLCD and a new classroom norm of acceptance of LLCD being created.

Qualitative findings have suggested this; for example, Tennant (2004) found that LLCD would typically be viewed as rude, disruptive or inappropriate by the teachers but that pupils showed no obvious signs of malicious intent. Tennant (2004) concluded that the children seemed not to understand the social norms of a classroom. This study highlighted a disparity of the social norms for an adolescent sample; however, this has also been inferred with a preadolescent sample (Ofsted, 2014). Ofsted (2014) stating some pupils who present LLCD seem to lack knowledge of what would be regarded as normative behaviour in a classroom and quoted a teacher saying that "in my experience pupils are rarely being deliberately rude, but lack awareness that interrupting is inappropriate" (p.9). Importantly, the notion of a shifting of classroom norms is in keeping with the current governmental behaviour advisor call for a change to classroom cultures (Bennett, 2017).

Process

In the PPCT (Bronfenbrenner, 1985), processes are regarded as the complex reciprocal interactions that take place in the human developmental trajectory. These processes involve interactions between the person and the objects, persons and symbols in their environment (Bronfenbrenner & Morris, 1998). Processes can be proximal, in the individual's immediate environment, such as child-parent interaction. These processes can also be distal, not in the individuals' immediate environment, having an indirect effect on the individual, such as child-parent's stress at work. Proximal process interactions that occur between the present study pupils and external influences can be viewed as potential antecedents of LLCD.

For the present study, process refers to the interactions between the child and their parents (i.e. parenting practices and parents screen time), the child with other home influences (i.e. home chaos, screen time, sleep, extra-curricular activity and socioeconomic), pupil and their teacher and pupil with other school influences (i.e. behaviour management strategies). The present study can investigate these processes at two particular times; at time point one and time point two. Additionally, due to the repeated measures design of the present study the pupils' development can also be viewed and investigated as a process occurring across the time period of a year.

Context.

To explain processes in context the PPCTM (Bronfenbrenner, 1995) provides four systems that contain the influences to an individual's development; the microsystem, the mesosystem, the exosystem, and the macrosystem. This section of the review details the empirical literature that addresses the antecedents, or processes placed in context, explicitly provide models for measuring the impact of the external environment on the outcome, in this case LLCD.

Microsystem.

The microsystem is thought to encompass the most direct influences on the presentation of LLCD within the developing individuals' immediate settings, in this case the home. For the present study the microsystem level analysis suggests that assessment of the factors influencing the presentation of LLCD need to consider: the pupil with the level of home chaos, the pupils' weekly screen time use, the presence of a television in the pupils' bedroom, the pupils' weekly sleep and the amount of extra-curricular activity the pupil participates in.

Home chaos. Home chaos is described as a measure of the environmental confusion that exists in a home (Matheny, Wachs, Ludwig & Phillips, 1995). This confusion is made up of high levels of background noise and crowding, as well as being an environment low in structural and temporal routine (Corapci & Wachs, 2002). It is suggested that chaos per se has always been present within a child's life, however that over time there has been a contextual shift of chaos. With the introduction of interventions such as 'The Healthy Child Programme' (2009) and 'The Safe Guarding Children's Act' (2004) chaos in the way of indirect environmental influences, such as economic, social or health factors could be regarded as having lessened (Lichter & Wethington, 2010). Arguably, chaos is now thought to be more prevalent in the home, following the growing personal choice of the adults in the home regarding marriage, childbearing and work, which has changed the traditional family dynamic (Lichter & Wethington, 2010).

Educational reports have stated "out of school factors" (Taylor, 2012, p.30) as holistically accountable for classroom behaviour. Home chaos has been cited as an important influence that can interrupt and weaken the influence of proximal processes between a developing individual and other people or objects from his/her immediate microenvironment (Bronfenbrenner & Evans, 2000). Further to the present study, home chaos has been linked with child behavioural issues (Whipple, Evans, Barry, & Maxwell, 2010).

Research associating home chaos to LLCD is sparse. Mixed methods research was carried out by Bartholomew (2015) with a similar sample to the present study, aged 9-11. Even though no quantitatively measured relationship between home chaos and LLCD was found, qualitative findings showed that pupils recording high LLCD also self-reported their home life as including factors associated with home chaos such as: a lack of routines around

meal times and maladaptive bedtimes (Gregory & Sadeh, 2012). Similar factors within home chaos research have been found to be associated with more general classroom behaviour.

Some of the factors that make up home chaos have also been individually linked to behavioural issues. Prolonged exposure to noise has been found to lead to disruptive behaviour (Shamama-tus-Sabah, Gilani, & Wachs, 2011). Exposure to noise can hinder an individual's ability to attend to information effectively, leading to the unconscious filtering out of the unwanted stimuli (the noise). This was found, over time to be habitually transferred to other microsystems such as school, proving less than adaptive (Hanscombe, Haworth, Davis, Jaffee, & Plomin, 2011). A lack of routine at meal times has been shown to be a risk factor associated with poorer child development. Friend et al. (2014) conducted a longitudinal study which found that meal time routines indicating a lack of home chaos enhanced parent-child communication and socialization.

Another factor of home chaos individually investigated is bedtime routines. Brown and Low (2008) suggested sleep deprivation associated with home chaos influencing a child's response to completing an academic challenge. This study was carried out with a young sample aged 36-60 months that measured persistence to complete a task. Yet Nilsson and colleagues (2005) suggested this occurs across the life span and found similar results with an adult sample, whereby a lack of sleep was found to be associated with maladaptive executive function. As executive function and self-regulation are thought to help control the ability to stay focused, think and filter distractions (Brocki & Bohlin, 2004) this influence transferred into the classroom context would not be beneficial to the child's ability to stay on task and consequential displays of behaviour conducive to LLCD may occur.

Parenting practices. Haydn et al. (2014) stated that teachers in primary schools are reporting a significant number of pupils with poor behaviour who are coming to school

having not been adaptively socialised by their parents. Giving support for this increase Haydn et al. (2014) quotes the statistic that from 2010-11 fixed term exclusions reached 38,000 for primary pupils. This is not a new finding as The Elton Report (1989) stated that the evidence of parental influence in shaping the classroom attitudes of children through their own behaviours was growing. Research supports the view that the family, especially parents are regarded as the main agent contributing to the socialisation of a child (Ladd & Pettit, 2002). During the particularly progressive period of preadolescent childhood, vital social skills are thought to be transferred from the parent to their child. Also that values and personality attributes are built, and adaptive self-regulation and acceptance of the social norms are enabled (Maccoby, 1992). This parent-child interaction is typically thought to remain prominent until adolescence when the child seeks autonomy and the communication between parent-child decreases (Keijsers & Poulon, 2013; Kerr, Stattin & Ozdemir, 2012). This transition of attributes and values from parent to child is believed to be bidirectional, meaning that the child is not a passive recipient and both parties shape the others behaviour (Pardini, 2008; Pettit & Arsiwalla, 2008).

The relationship between quality of parent socialisation and childhood outcomes has been studied for many years. Baumrind (1967) parenting style typology is the most widely used theory in this field. She outlined three main parenting styles: 1) authoritative, 2) authoritarian and 3) permissive. Maccoby and Martin (1983) later added a fourth style of disengaged parenting. A robust body of evidence has consistently supported the paradigm of parenting styles being closely related to childhood behavioural outcomes (Henderson, Dakof, Schwartz, & Liddle, 2006; Russell, Hart, Robinson & Olsen, 2003; Sangawi Adams & Reissland, 2015). However, issues have been raised as to the continuing relevance of this paradigm in modern day social science research.

First, as Baumrind conceptualised her parenting style model during the 1960s, it has been questioned how its application can remain valid today. Considering major historical events such as, the rise in one-parent families, higher divorce rates and the world-wide-web phenomena have changed family structures and social behaviour either directly or indirectly (Van Ijzendoorn, 1992). Research from Littlewood (2009) has suggested a between generation effect with parenting styles changing dramatically over time, even from one generation to the next. Results from her study of three generation family triads (N=27) inferred a shift from a collectivist set of values and behaviours to an individualistic set of values. Across a single generation jump, they specified a number of changes, for example, the number of nights per week that families ate dinner together having decreased over this period.

Second, Baumrind's conceptualisation of parenting styles emerged mainly from research carried out with white family samples, thus bringing into question whether the findings can be generalised across different cultures. Baumrind (1972) found that the authoritarian parenting style elicited different outcomes with different cultures. For example, she found that for White children authoritarian parenting was associated with fear and compliance, whereas for African American children in the sample authoritarian parenting was associated with assertiveness. Supporting this a substantial review carried out by Sangawi, Adams and Reissland (2015) suggested culturally contradictory results.

Lastly, although parenting is widely regarded as a bidirectional process; historically, the parenting styles model presents a unidirectional relationship with the style of parenting shaping the child's behavioural outcomes with little emphasis on the child's role in the relationship. The present study moves away from this unidirectional paradigm and supports the bioecological reciprocal view of parenting, "that characteristic of the individual, the

person, the environment, and the outcome were all necessary to predict the expected patterning of findings" (Darling, 2007, p.210). Durbin, Darling, Steinberg and Brown (1993) offer an alternative contextual model of parenting, stating that parenting styles only infers the emotional aspect of parenting. Their paradigm defines parenting practices as behaviours carried out by parents specifically to socialise their children, which can be more successfully applied across cultures and time.

These parenting practices have been reliably linked to childhood behaviour (Elgar, Waschbusch, Dadds & Sigvaldason, 2006). Practices such as poor parental monitoring (also referred to as parental supervision), positive parenting and inconsistent discipline are suggested as playing important roles in a child's emotional expression through behaviour (Dishion, & McMahon,1998); Dadds, 1995). Adaptive parental monitoring such as rule setting, overseeing a child's free time and knowledge of the child's friendship group has been robustly found to reduce behavioural problems (Bailey, Hill, Oesterle & Hawkins, 2009; Stanger et al., 2004). Parental monitoring has been empirically linked to increased self-esteem (Patterson, Reif & Dishion, 1992), higher academic competence (Dishion, & McMahon, 1998) and prosocial behaviour (Dunn, Deater-Deckard, Pickering, O'Connor, Golding, & ALSPAC Study Team, 1998). Conversely a lack of parental monitoring has been found to be associated with childhood antisocial behaviour (Patterson & Stouthamer-Loeber, 1984).

Positive parenting can be viewed as the quality of expressed affection and support that a parent has for the child, when adaptive this will lead to security and protection, enhancing a child's wellbeing and positive behaviour. This bidirectional parent-child relationship (Belsky, 1984) has been found with longitudinal research. Newton, Laible, Carlo, Steele and McGinley (2014) carried out cross-lagged comparisons between positive parenting and

prosocial behaviour. Results found mothers' positive parenting when the child was four years old predicted the child's prosocial behaviour in Grade 3; furthermore, Grade 3 prosocial behaviour predicted maternal positive parenting at age three years. This was found to also be the case with longitudinal cross-cultural research. Across eight countries, negative parental praise was associated with maladaptive social behaviours such as insecurity and self-regulation difficulties (Pettit, Bates, & Dodge, 1997; Sangawi et al., 2015).

Lastly, inconsistent discipline has been associated with early onset behavioural issues. Research has suggested that failing to follow through with discipline or giving up may be encouraging the noncompliance of social rules (Patterson, 1986). Wahler and Dumas (1986) inferred the *predictability hypothesis*, that children required consistency in their life. Suggesting that when a child faced with inconsistent discipline from their parent will engage in more misbehaviour designed to elicit a predictable response from their parents.

The majority of parental practices research tends to report on an association with higher-level behaviours such as setting fires (Kolko & Kazdin, 1986) and substance abuse (Loeber, & Dishion 1983). There is little quantitative evidence linking LLCD to parenting practices. However, in qualitative interviews, teachers reported to Ofsted (2014) that some children who display LLCD seem to lack knowledge of normal social behaviour. They reported that acts of pupil rudeness or inappropriate interruptions were not generally deliberate. Instead, they believed that the pupils were unaware of their actions, suggesting influences of parenting practices.

Television in bedroom. Research has reported that having a television in the bedroom tends to increase an individual's hours of viewing (Barr-Anderson, Van Den Berg, Neumark-Sztainer, & Story, 2008; Christakis et al, 2004). Ofcom (2014) report 48% of children aged 5-15 years in the UK have a television in their bedroom. Furthermore, increases in television

viewing for individuals with a television in their bedroom have been found across the childhood age span. Research with an adolescent sample (mean age of 17years) found the weekly hours of viewing increased by 25% for those adolescents who have a television in their bedroom had compared to those who did not have a television in their bedroom (Barr-Anderson et al., 2008). In a longitudinal study Christakis, Ebel, Rivara and Zimmerman (2004) found similar results with a younger sample (mean age of 5 years).

The American Academy of Paediatrics (2012) recommends that children over 2 years spend no more than 2 hours a day watching television. In keeping with these recommendations, in the UK recent self-reporting data has revealed an average of 13 hours of weekly viewing for children aged 8-12 years (Ofcom, 2017) and watching television is still quoted as the number one screen time activity for children. Furthermore, Fuller, Lehman, Hicks and Novick, (2017) found that children who watched over the recommended 2 hours a day were more likely to display inattentive behaviours than those who watched under the recommended number of hours. Other longitudinal research has supported this link and reported associations between early exposure to television at aged 1 and 3 and attentional problems at age 7, and concludes that efforts should be made to limit television viewing in childhood (Christakis et al., 2004).

Screen time. The use of screen time can be viewed as part of a historical macro-time change (Bronfenbrenner, 1985). This change including the recognition that being computer literate is an essential skill for all children to attain (DfE, 2013) with technology acting as both an educational aid and a source of entertainment. Prior to the wide spread use of internet based technology, research tended to concentrated on the influence of screen time on behaviour by measuring television viewing (Zimmerman, Christakis, & Meltzoff, 2007), video watching (Petley, 1994) and video gaming (Dill, Gentile, Richter, & Dill, 2001). The

majority of studies documented the negative effect of viewing violence on long-term childhood behavioural outcomes. More recently, there have been major technological advances providing more accessible internet access, smart phones and touch screens. As a result of these developments, the definition of screen time now encompasses any electronic device that has the ability to entertain or inform via a visual screen (e.g. mobile phones, tablets, games consoles, personal computers, lap-top computers and television) (Galpin & Taylor, 2017).

In line with these rapid advancements in technology comes a substantial uptake in usage. A recent publication from Ofcom (2017) reports that 94% of UK children aged 8-11 are using media devices to access entertainment, communication, news, politics and to socialise. The majority of children in this age group (84%) have their own device rather than having to share a family device. Furthermore, 55% of these children now own three or more devices and 9-12 year olds are being reported as displaying patterns of internet use that resembled teenagers 5 to 6 years ago (Haddon & Livingstone, 2012).

Past research has centred around the content of the viewed material, with concerns of its impact on childhood and society. These concerns are still highly relevant and expressed today (Livingstone, Mascheroni, Dreier, Chaudron, & Lagae, 2015). However, the *amount* of screen time is gaining interest (Ofcom, 2016). Parents have suggested that the amount of screen time their child uses is third in a list of issues that cause family conflict, following sleep/bedtime and behaviour (Livingstone, Blum-Ross, Pavlick, & Ólafsson, 2018).

This increase of screen time use led Matt Hancock, the [then] government Secretary for State of Digital, Culture, Media and Sport to state concerns about the amount of screen time young people were using and the negative impact it could have on their lives (Agerholm, 2018). He further called for the government to impose an online age verification system to

limit a child's screen time. Prior to this The American Association of Paediatrics (2016) had revised their own screen time recommendations for children. Previously they had recommended that children over 6 years have no more than two hours of screen time per day. With the increase in hours of electronic devices becoming embedded in family life, the revised recommendation renounced time restrictions and became centred on a family-based use of screen time. Parents were advised to set time limits and consistently enforcing them to ensure limited disturbances to sleep, physical activity, family time, additionally to have media free areas of the home, such as the bedroom (COUNCIL, OC, 2016). These new style guidelines have been further supported in the UK by The British Psychological Society (BPS) stating that children and adolescents' screen time should be over seen by parents and carers (Galpin & Taylor, 2018).

This macro-evolution of technological influence is reflected in the governmental reporting of LLCD. More traditional reports, such as The Elton Report (1989) cite violent television as a potential influence of maladaptive classroom behaviours. However, mobile phones are cited as a potential influence only in more recent reports (Bennett, 2017; Ofsted, 2014; Steer, 2004). One piece of mixed methods research (Bartholomew, 2014) has begun to examine the link between electronic device use and LLCD explicitly. This research acted as a pilot to the present study and a key finding was that internet use yielded a significant positive prediction of LLCD (after controlling for grade level and general classroom behaviour). This was further supported by in-depth individual interviews conducted with pupils aged 9-11. They asked pupils to state their typical daily internet use. Reports varied from minimal amounts (i.e. Participant 4) to in excess of four hours per day (i.e. Participant 7). Crucially pupils reporting higher internet use also reported higher levels of LLCD (Bartholomew, 2014). The increased and constant opportunity for screen time activity would suggest this is a proximal influence on behaviour according to Bronfenbrenner's (1995) definition of proximal

processes which: “must occur on a fairly regular basis over extended periods of time” (p. 620). With the rapid advances in technology, accessibility of such for many children is thought to be exceeding the recommended two hours of daily screen time (Henderson et al., 2006).

Results found for an association between socioeconomic status and mobile device use are mixed (Fairclough, Boddy, Hackett & Stratton, 2009). Research suggests that children in lower socioeconomic status households have greater access to expensive digital media entertainment (Tandon, Zhou, Sallis, Cain, Frank & Saelens, 2012). Further research suggested that this greater access to digital media devices potentially leads to a higher accumulation of screen time hours (Weir, Etelson, & Brand, 2006). One potential reason for these differences has been suggested as being parental influence; higher socioeconomic status parents report more awareness of the potential health issues related to screen time (Link & Phelan, 1995) and also have more resources to offer children alternative extra-curricular activities outside of the home, compared to lower socioeconomic status parents. It has also been suggested that parents with lower socioeconomic status have concerns over their children playing in potentially rougher neighbour hoods, than the neighbours associated with higher socioeconomic status (Weir, Etelson, & Brand, 2006). This could be seen as the reason why more parents from lower socioeconomic status households buy their children more electronic devices to play inside the home. However, other research has found no influence of socioeconomic status on the number of media devices owned (Fairclough, Boddy, Hackett & Stratton, 2009).

Further to investigating the possible direct link between screen time and LLCD, the present study looks at the external influence of a pupil’s weekly screen time hours as a predictor of their proneness to boredom in the classroom. As previously highlighted, there is

evidence that suggests a direct link between state boredom with maladaptive classroom behaviour (Larson & Richards, 1991; Pekrun, Goetz, Titz, & Perry, 2002). However, as state boredom is a unidirectional model of boredom it offers little explanation of any cumulative effect from further antecedents that precede boredom experienced in the classroom. In keeping with these cumulative effect researchers acknowledge not only the state or situational model of boredom but also the dispositional or trait model of boredom (Vodanovich, 2003).

The trait model of boredom concludes that individuals differ in their propensity to experience boredom making some more prone to boredom than others, regardless of the situational context (Farmer & Sundberg, 1986; Fisher, 1993; Sundberg, Latkin, Farmer & Saiud, 1991). Research has reported that pupils with high levels of academic boredom also report high levels of boredom in additional contexts such as outside of the school during their leisure time (Larson & Richards, 1991). According to Vodanovich (2003) this proneness to experience boredom is the result of a two factor structure comprising external stimulation (state boredom) arising from the direct context, in this case the classroom, and unique internal stimulation of the individual (i.e., trait boredom).

An example in a classroom is the interplay between task difficulty and pupil ability. Sisk (1988) found that high-achieving pupils (representing the internal trait) experienced boredom because of a non-challenging task (representing the external state). Furthermore, research has found this interplay to be the case for pupils of lower academic ability (Pekrun, Hall, Goetz, & Perry, 2014). Pekrun et al. (2014) found that pupils who struggle to keep up with a task in class, due to lower academic ability tend to fall off-task and experience boredom. A study by Daschman, Goetz and Stupnisky (2011) concurred when assessing a sample of 1,380 pupils (M=12.56 years). In this study greater boredom was associated with lower maths achievement for both under-challenged pupils and over-challenged pupils.

Research by Ket de Vries (2014) postulated the hidden value to the individual of directly experiencing boredom direct, and thus developing the ability to control the negative effects that accompany it. However, he adds in the busy contemporary world of cyberspace, multitasking and hyperactivity make this "quiet time" (p.170) hard to achieve. He states that as boredom is a factor occurring in everyday situations, it is paramount that an individual must have the ability to deal with this. The alternative for those who cannot tolerate boredom would be to continuously seek stimuli. Eastwood et al. (2012) have raised the question of whether increased distraction, resulting from modern life has lead humans to become more prone to boredom.

He argues that when stimulation from electronic devices is stopped, withdrawal is experienced through feelings of boredom. This highly negative experience can be similar to that experienced by withdrawal from drug addiction. These negative feelings of boredom are then in turn relieved by further stimulation from screen-based media. Although this research related to adults, it is deemed relevant to the present thesis as children are referred to as are the "net generation" (Oblinger & Oblinger, 2005, p.1) or *"*digital natives" (Prensky, 2001, p. 1), having been born into and growing up in a world of digital technology.

Research suggests that if the individual is unable to tolerate these undesirable emotions, then alternative motivators will be sought out in order to alleviate this lack of personal arousal (Hamilton, Haier & Buchsbaum, 1984; Mikulas & Vodanovich, 1993). The physiological response of arousal can be experienced on a low-high continuum with presentational factors being conducive to the factors associated with LLCD (e.g. swinging on chair, falling off task, fidgeting and fiddling with classroom equipment). When an individual is under-aroused (e.g. low on the continuum) they may report feeling of tiredness or fatigue and these results in inactive behaviours, such as: taking on a slouching position, yawning or

day dreaming. Conversely, if an individual is over-aroused (e.g. high on the continuum) they may experience internal states of irritation and excitement, resulting in alternative motivating behaviours, such as fidgeting or demanding attention (Martin, Sadlo, & Stew, 2006). The present research suggests that these alternative motivators can be manifesting themselves in LLCD (e.g. swinging on the chair, fidgeting with equipment, making noises and calling out inappropriately).

Supporting the arousal theory, recent literature has indicated that early information, communication and technology (ICT) exposure has been positively associated with attention regulation issues, when a user is engaging in a non-stimulating activity (Christakis & Zimmerman, 2009). Research has also suggested that boredom may arise when ICT use is limited. For example, during school hours, this can result in both low and high arousal and alternative motivators being sought out (Siomos et al., 2012). Furthermore, Zeiger (2004) suggests that proneness to boredom can be the product of doing too much rather than doing too little and in the interactive world of today this could be exemplified.

Sleep. Sleep is thought to be essential to restoring and revitalising the psychological and physiological processes that aid the upkeep of a properly functioning body and mind (Diaz et al., 2017). This has been found to be especially central in childhood due to the rapid developmental growth taking place at this time (Bagley & El-Sheikh, 2013; Welsh, Pennington, & Groisser, 1991). The National Sleep Foundation (2017) recommend for children aged 6-13 that the optimal quantity of night time sleep required for efficient day time functioning is 9-11 hours. They also conversely recommend that the hours of sleep for this age group do not fall below 7 hours per night. However, in Britain 20-30% of young children are reported as having sleep problems (Tremblay et al., 2017). During the process of this literature review, no evidence found associated the amount of weekly sleep specifically to

LLCD amongst pupils. However, correlational research has suggested a robust link between sleep patterns and behavioural difficulties.

A large systematic literature review of sleep in typically developing school-aged children (5-12 years) found a strong correlation between shorter sleep durations and behavioural difficulties (Astill, Van der Heijden, Van IJzendoorn, & Van Someren, 2012). Some of the behavioural difficulties noted can be associated with behaviours associated with LLCD, for example, externalising behaviours including hyperactivity, which presents similarly to that of LLCD. Other correlational research supports this, for example El-Sheikh, Erath and Keller (2007) conducted a hierarchical regression model (controlling for; age, gender, socioeconomic status and ethnicity) on data from parents. They found less sleep was associated with both externalising problems (11% of the final model) and internalising problems (9% of the final model). Conversely, they found a greater amount of sleep predicted lower externalising problems (11% of the final model) and lower internalising problems (13% of the final model). Correlation data such as these have been effective in building evidence of a robust relationship between quantity of sleep and behaviour. However, correlational research is limited and cannot make casual inferences.

Within the confines of ethical considerations, a limited amount of experimental studies has tried to overcome the limitations of correlational research in attempt to determine the causal role of sleep on behavioural outcomes (Beebe, 2011). Fallone, Acebo, Seifer and Carskadon (2005) conducted a 3-week observational study, with a sample of children aged 6-12 years. Within-participants they assessed a week of normal sleep patterns, restricted sleep (less than 8 hours per night) and optimal sleep (more than 10 hours per night) conditions. In addition to the participants reporting sleep conditions, teachers rated the children's classroom behaviour. The findings suggested a cross-condition effect on sleepiness and inattention, with

restricted sleep scoring the worst. Taking a more experimental approach, Van Maanen, Meijer, Smits and Oort (2011) manipulated sleep duration by using melatonin (a hormone that occurs naturally in the body and regulates the sleep-wake cycle). The sample consisted of children with the existing condition of insomnia; therefore, the research was conducted as a form of treatment for their sleep deprivation. These children reportedly showed increases in sleep duration and their caregivers reported them as having improved behaviours. Restricted by ethical considerations, such studies are unable to show the impact of sleep duration over longer periods. Moreover, the results are limited to a sample of children with an existing sleep problem, therefore, the results cannot be generalised to the behavioural trajectory of a typically developing individual.

Overcoming ethical issues and introducing the element of developmental changes, longitudinal studies have aimed to measure the natural associations between longevity of sleeping hours and behavioural outcomes, however results have been contentious. Gregory and O'Connor (2002) found that across an eleven-year period (between 4-15 years), sleep problems decreased but sleep problems in earlier childhood still predicted later behavioural issues (after controlling for gender and stability of behavioural problems). Some moderate results have found sleep problems at 3 years predict conduct problems and hyperactivity at age 7, however, these researchers concluded that future research needs to look specifically at mediating factors (El-Sheikh, Kelly, Buckhalt, & Benjamin Hinnant, 2010).

One such potential mediating factor considered by the present study is amount of screen time. A recent narrative review on modern day sleep-wake patterns infers a decline in the habitual hours of sleep amongst children, with a sleep pattern decrease of 0.75 minutes per year over the last century (Matricciani et al., 2017). They further suggest this decrease is due to today's '24-hour society' (p.317), developed as a consequence of technology use. The

British Psychological Society recently issued the advice that children and adolescents' media, screen based activity should be kept to a minimal just before bedtime (Galpin & Taylor, 2018).

The connection between the increase in weekly screen time and decrease in weekly sleep in childhood has been seen to operate through various mechanisms. One factor is the effect of the artificial light emitted from screens distorting the circadian rhythm, suppressing the sleep promoting melatonin hormone (Hale & Guan, 2015). Screen time also promotes physiological and psychological arousal due to being overstimulated from the content of the viewing. Screen time content can be dichotomised as passive and interactive viewing (Yland, Guan, Emanuele, & Hale, 2015). Interactive screen time, such as web surfing, video gaming and social media involvement has been hypothesised as being more disruptive to sleep, compared to passive screen time such as watching television (Dworak, Schierl, Burns & Struder, 2007; Yland et al., 2015). Lastly, there is time displacement, where simply the more time spent using screen time devices the less time is available for sleep. As the present study investigates screen time quantity this final mechanism of time displacement was the primary focal point and will now be outlined in greater detail.

Time displacement has been mainly investigated with observational and cross-sectional research designs. A recent systematic review of 67 cross-sectional articles divided screen time into categories, dependant on which devices were included in the study's definition and subsequent measuring tool (Hale & Guan, 2015). Of the studies that included multiple devices within a single measure of screen time, 91% found a negative association between the child's amount of hours of screen time and the amount of sleep (i.e. as the amount of screen time increased, the amount of sleep decreased). Further support was found in a large-scale observational study conducted with children aged 9 and the main carer-giver.

Findings demonstrated that decreases in sleep were associated with both self-reported and carer-reported hours of screen time, thus strengthening the evidence of an association between these two factors (Yland et al., 2015).

A child is party to reciprocal interaction, as such cross-sectional and observational designs would be not an effective design to address causality or direction of such interactions (Eggermont & Van den Bulck, 2006). However, Magee, Lee and Vella (2014) found evidence for a bidirectional relationship in a three-time point longitudinal research. A cohort of children (*N*=3427) were measured for total media use and sleep duration at age 4, 6 and 8 years. Testing a cross-lagged model results found negative associations between total media use at 4 years and sleep duration at 6 years, and media use at 6 years predicted sleep duration at 8 years. In addition, sleep duration at 4 years was negatively associated with media use at 6 years, then sleep duration at 6 years predicted media use at 8 years. Likewise, reverse causality was found for children who naturally need less sleep, therefore spending more time using screen based devices. Another longitudinal study with 4-8 year olds, found that a decrease in sleep would lead to daytime sleepiness, which in turn would result in more sedentary behaviours such as screen time (Magee et al., 2014).

These longitudinal results found the relationship between screen time and sleep to be highly ambiguous producing mixed results. Johnson, Cohen, Kasen, First and Brook (2004) found that higher amounts of screen time (specifically television) predicted shorter sleep duration for adolescents, but found no significant prediction in the opposite direction. Barlett, Gentile, Barlett, Eisenmann and Walsh (2012) found the opposite to be true with less weekly sleeping hours predicting more weekly screen time.

Extra-curricular activity. Over recent years children's free time choices have changed, involving more activities revolving around electronic devices and sedentary

behaviour. Recognising this, and as part of the 2012 London Olympic Games the government in England launched its 'Change4life' campaign in 2011 (Change4life, 2016). Still active today, this web-based intervention includes a search bar to enable users to look for local extra-curricular clubs and activities outside of school time. Extra-curricular activity can be defined as an activity that falls outside the realms of the normal curriculum of school education (OECD, 2009).

Some extra-curricular activities have been shown to offer physical benefits, such as preventing and decreasing obesity (Vasques, Magalhães, Cortinhas, Mota, Leitão, & Lopes, 2014). While other research highlights the role of extra-curricular activity in enhancing the development of positive cognitive attributes such as self-regulation (Becker, McClelland, Loprinzi, & Trost, 2014), attention (Chaddock et al., 2010), and working memory (McMorris, Sproule, Turner & Hale, 2011). Extra-curricular activity is thought to reduce general behaviour problems (Massoni, 2011). More specifically, it is thought that extra-curricular activities such as team sports lead to adaptive self-esteem and self-confidence, thus deterring antisocial behaviour. Research specific to extra-curricular activity and LLCD is limited.

However, in the pilot study for the current research extra-curricular activity was examined as a relation to LLCD (Bartholomew, 2015). A sample of primary school pupils took part who were presenting LLCD. They reported a lack of extra-curricular activity with differing moderating reasons for this. When asked by the researcher, "do you belong to any afterschool clubs" Participant 8 replied "my mum says they are too expensive, no" (p.44). Also, it was found that some parents did not like their children playing outside of the home. When the interviewer asked about playing outside safety issues, for example, Participant 3 stated that "my mum does not think it's safe" and Participant 5 said "No, my parents worry about me a lot so like they want me to be safe so I don't go out on the street" (p.45).

Increased engagement with digital-based activities may also be acting as a mediator and leading to time displacement, of extra-curricular activity for screen time. Some of the pupils who took part in the aforementioned LLCD study reported that playing their electronic device was their extra-curricular activity (Bartholomew, 2015). When asked what their hobbies were one pupil replied, "My hobby is playing…. I go upstairs and ask my brother if he wants to play because we can connect on our tablets and play Minecraft and play the same world" (Participant 1) and another stated that his hobbies were "art and PlayStation (Participant 8, p.44). Using the time displacement theory Hofferth (2010) carried out research with a large American preadolescent sample (*N*=1226, 6-12 years). Data was drawn from the Panel Study of Income Dynamics, a longitudinal survey covering the years 1997-2003. Results supported the displacement effect; preadolescents who spent more time playing video games, spent less time pursuing outside activities. However, the data used for the analysis can be described as predating the recent technological explosion that is guiding the activities of the digital native pupils of today.

More recent research has addressed the time displacement theory in relation to extra-curricular activity and screen time with interesting results. Mourgela and Pacurar (2018) investigated a sample of preadolescent children (9-12 years) in Greece. They found that digital natives did not substitute the time spent doing extra-curricular activity, in place of screen time. Instead, they found that the pupils accumulated the two activities. A positive correlation was found between pupils' free time activities from reading to sports with their screen time use (primarily mobile devices).

Mesosystem.

Mesosystem assessments contain the inter-relations among two or more microsystems, all of which would contain the developing individual (Bronfenbrenner, 1986).

The present study, regards the teacher as a relevant mesosystem factor potentially influencing and being influenced by the pupils' presentation of LLCD. As has been highlighted throughout Chapter 1 and in the literature section (*The impact of LLCD on the teacher and the pupil*), LLCD impacts on the teacher. Teachers have consistently ranked LLCD as the most troublesome disciplinary problem in their schools (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2005), acting as an additional stressor to their everyday workload (Aloe et al., 2014; NASUWT, March 2017).

Furthermore, a reduction in attainment, often presented as LLCD has historically been assumed as being manageable by effective teachers (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2005). Therefore, the repetitive nature of LLCD and being held personally responsible for the amount of LLCD has been inferred as influencing a teacher's susceptibility to professional burnout, thus leading to higher attrition rates among teachers (Freudenberger, 1974; Skaalvik & S Skaalvik, 2017). In turn, research has linked supply teachers to higher pupil presentation of LLCD (Aloe et al., 2014). Given this explanation, mesosystem is included in the present study through the qualitative examination and reporting of the teachers' perception of the impact LLCD has on the classroom.

Exosystem.

The exosystem contains interactions between two or more settings, with the developing individual in only one of these settings (Bronfenbrenner, 1994). This system contains the distal factors which the pupil has no direct contact with and that only affect the individual indirectly. An example Bronfenbrenner (1986) offers is a "parent's circle of friends and acquaintances-their social network" (p.723). The present study investigates the distal process interaction of socioeconomic status and parents screen time. Neither directly

includes the pupil; however, both could influence indirectly on the individuals' presentation of LLCD.

Socioeconomic status. Research linking socioeconomic status with LLCD is sparse. The distal family characteristic of socioeconomic status has been shown to play an important role in the presentation of general behaviours. Silver, Measelle, Armstrong and Essex (2005) found a significant relationship between familial socioeconomic status and externalizing behaviour trajectories in their sample. They found that children from higher socioeconomic status families experienced increases in externalising behaviour significantly slower over time, compared to their lower socioeconomic status peers. Conversely, decreases in externalising behaviour occurred significantly faster for the pupils from higher socioeconomic status families, than for their peers from lower socioeconomic status families. Overall, pupils from higher backgrounds of socioeconomic status tend to behave better than those from lower more disadvantaged backgrounds (OECD, 2010).

Parents screen time. The American Academy of Paediatrics (2016) made recent parental recommendations of when and how children should be using screen time to aid the development of typical behavioural trajectories. However, with adults in the UK reportedly using up to 10 hours a day screen time (Elsworthy, 2018) parent's use of screen time is a factor to be additionally taken in to consideration when investigating childhood behaviours. In Finland, a controversial media campaign to combat child neglect, showed a visual of a mother distracted by her smartphone as an example of child neglect (Cooper, 2016). Complaints stating the campaign was being unfair to mothers, and questioned if smartphone use should be associated with neglect were raised. A more recent advert from Sweden shows a mother experiencing divided attention between being at home with her family and using her mobile phone at the same time (Clas Ohlson, 2018 August 24). These types of inferences

question if a parent-child relationship, interrupted by the parents' use of technology is now being established as the social norm (Campbell & Park, 2008), not conducive to successful behavioural trajectories.

Research carried out by Digital Awareness UK (2017) found that 36% of 11-18 year olds had asked their parents to put down their mobile devices, with 14% saying their parents use their phones during family times such as dinner. Half of the parents surveyed for the same study also perceived they spend too much time on electronic devices, with 15% saying that they could reach up to 15 hours of screen time over a weekend. Consequently, Digital Awareness UK issued a set of tips for parents to reduce their screen time use, such as to use a screen–time monitoring app, have *no phone* rules at the table and to leave emails at the house door when coming home from work (Gallagher, 2017).

As was the case with the literature assessing pupils' weekly screen time in relation to LLCD, research linking parental weekly screen time with LLCD is almost non-existent. The mixed methods research on which the current study is based has been the only research known to date containing these two variables (Bartholomew, 2015). This study was primarily investigating the pupils' use of the internet and its influence on LLCD. However, grounded analysis revealed a new theme emerging from the data of parents' electronic device use. The pupils in the higher LLCD group reporting more parental use of electronic devices than those pupils from the lower LLCD groups.

Further to this, research infers that the more hours a parent sends each week using screen time the less direct interaction they will have with their child (Radesky et al., 2014). In 1986 Bronfenbrenner stated that "the primary importance of television viewing on the family for child development may be, not so much in the behaviour it produces as the behaviour it prevents" (p.736). This interruption to the parent-child interaction has been likened to multi-

tasking. The parent will be physically present in the same direct environment as the child, often even face to face, such as during family meal times (Radesky et al., 2014). However, it is suggest that the parents' will be more attentive to their screens, and emotionally absent from the child (Christakis, 2018).

Importantly, a stifling of social interaction between a parent and child can be seen as detrimental to cognitive development in childhood (Vygotsky, 1978). This concept of partial attention specifically caused by technology use has been termed as technoference (McDaniel, 2015). Technoference has been found to have a detrimental effect on a child's behaviours (Kirkorian, Pempek, Murphy,Schmidt & Anderson, 2009). Surreptitious research was carried out in fast-food restaurants; where dyads of parent/guardian and children were unaware that they were being observed. Using grounded theory, 40 parent/guardians were observed as being absorbed in their mobile phones rather than interacting with the children (Radesky et al., 2014). Some of these carried out multi-tasking, holding on to their phones while attending to other tasks.

It has been argued that to overcome such interruptions children will innately try to convert the inattentiveness of parents to attention by way of physically pulling on their parents or crying out as tantrums (Christakis, 2018). The Radesky et al. (2014) study found evidence of this, as some of the children made bids to gain their parent/guardians' attentions. The parents' responses were mostly found to be negative, either verbally scolding the child or physically dismissing the child. One female was seen to push away the child's out stretched hand. Some children seemed to be accepting of their parent/guardians lack of engagement and made no attempt to attract attention. The researchers acknowledged that due to the pioneering nature of this research caution must be taken when associating parental mobile phone use and parent-child interactions and that further research must take place.

However, a further project by this research team found this effect in the unusual environment of lab conditions. Whilst being assessed on their interactions with their children, 21% of the observed mothers displayed divided attention, spontaneously using their phones whilst trying out new foods with their children (Radesky, et al., 2015). Further to this, a recent study by M^{c}Daniel and Radesky (2017) hypothesised that greater parental digital use (screen time) would be associated with their children experiencing more externalising and internalising behaviours using technoference as a mediator of this relationship. With a sample of 183 couples, 48% perceived technoference occurred more than 3 times a day and was correlated with their screen time. Further to this, and as expected this relationship mediated the relationship between the parents' screen time and both internalising and externalising behaviours of the child.

Research has also suggested that parent's and children's weekly use of screen time is highly correlated (Lauricella, Wartella & Rideout, 2015). This relationship can simply be psychologically explained by applying Bandura's (1977) Social Learning Theory (SLT), positing that an individual will learn behaviour via observations of others; in this case the children will model their own screen time use by observing their parents' behaviour. Research has demonstrated this direct proximal process between the parents' screen time and the child's own screen time. Children whose parents use over 2 hours a day screen time watched on average 28 minutes more television compared to children whose parents use less than 2 hours a day screen time (Jordan, Hersey, McDivitt, & Heitzler, 2006).

Macrosystem.

The macrosystem level can be regarded as the cultural 'blueprint' that determines the societal structures and activities that occur in the other system levels (Bronfenbrenner, 1994). LLCD is embedded in the culture of the school, therefore to aid in the understanding of

LLCD understanding of the school culture needs to be understood. Although, not assessed directly for the present study, the macro-level influence of classroom management strategy is likely to be present and needs to be included.

Since the whole school approach to behaviour was recommended by The Elton Report (1989) the majority of schools across England still conform to its recommendation (Wood, 2008). Underpinned by the behaviourist approach, the classroom management strategy of rewards and sanctions was recommended when dealing with LLCD (Bennett, 2017; Elton, 1989). This is still being upheld today by governmental behaviour advisors stating that teacher should, "understanding when and how to react to inappropriate behaviour in such a way those normal classroom systems are resumed, and further disruption is minimised. These can involve a repertoire of possible responses such as sanctions, body language, reminders, removals, summoning assistance' (Bennett, 2017, p, 36). The three schools participating in the present study respect this classroom management strategy and are centred on the teacher choosing a contingent response to pupil behaviour. These responses tend to concentrate on the outcome, i.e. the behaviour, and can be either a proactive or a reactive response.

A proactive response is thought to reduce the likelihood of inappropriate behaviour occurring, such as the establishment of class rules at the beginning of the school year and the consistent issuing of rewards, such as verbal praise for appropriate behaviour (Safran & Oswald, 2003). Regarded as preventative, proactive responses are advocated as the primary classroom management strategy to use in order to create positive classroom cultures (Rogers, 2011). Reactive responses are those implemented to control an incident of inappropriate behaviour, such as a sanction being issued. These are remedial in nature and are typically believed to create a more negative classroom atmosphere (Little & Hudson, 1998). Comparisons studies investigating the effectiveness of proactive versus reactive responses have suggested that a proactive response to misbehaviour create a more positive classroom

climate, reducing LLCD and reducing teacher stress (Brophy, 2000, Swinson & Knight, 2007). However, a mixed methods study carried out by Clunies-Ross, Little and Kienhuis (2008) suggested that in reality these relationships are not so straightforward.

The researchers collected questionnaire data from 97 primary school teachers and carried out observations on a sub-sample of 20. In keeping with previous reports (Merrett & Wheldall, 1986; Elton, 1989; Steer, 2005, Ofsted, 2014), participating teachers reported the most troublesome behaviour issues such as talking out of turn and hindering other children, behaviours conducive to LLCD, and teachers stated workload and pupil behaviour issues as the most prominent source of stress. Encouragingly, overall the teachers self-reported that they favoured the use of the more positive proactive classroom management strategy over the more negative reactive classroom management techniques. With this self-reporting being further validated by the researchers' observations. However, even though the teachers reported using more proactive strategies no significant relationship between the use of proactive responses and a reduction of LLCD was found. Supporting this finding, qualitative research that observed a primary school sample also found no relationship between proactive classroom management strategy and LLCD (Halstead & Jamei, 2009).

A critique of the behaviourist based classroom management strategy is the reliance on pupils being passive respondents to the sanction regarding the behaviour as the outcome and not considering psychological, physiological or environmental antecedents from an individual's ecological systems, basically 'blaming' the pupil for their behaviour (Sullivan, Johnson, Owens, & Conway, 2014, p,45). Research has suggested that the widely used behaviourist classroom management strategy of rewards and sanctions disregards any social norms relevant to the pupil and is purely a model of control (Lewis, 2001). Empirical research has inferred that using this classroom management strategy to control socially related behaviours such as LLCD leads to feelings of humiliation and unfairness for the pupil

(Woods, 2008). This humiliation has been suggested as leading to the creation of a cyclical power struggle between the teachers' dominant control and the pupils' responding acts of LLCD (Halstead & Jamei, 2009). This then has an adverse effect of instigating, rather than the decreasing LLCD.

Additionally, research has indicated that some teachers choose a classroom management strategy, ignoring incidents of LLCD as a way limiting the interruption on the classroom (Edlounge, 2015; Ofsted, 2014). Teachers are being prompted to think about how the form of LLCD is being presented. If the behaviour is thought not to be overly effecting their ability to teach and the pupil's learning time it has been advised to ignore it as a form of 'damage limitation' (EDlounge,2015, pg,15), which a fifth of teachers have been reported as having carried out this technique (Ofsted, 2014). The view is that when no contingent response is forthcoming the action will weaken and eventually become extinct; with the ignoring action of the teacher regarded as the sanction. However, research has suggested that by not directly addressing an act of LLCD the teacher will in fact exacerbate further occurrences of the behaviour taking place (Chang, 2013; Brady, Forton, & Porter, 2012). Thus, the persistence and high prevalence of LLCD impacts on the classroom daily, heightening the teachers' workplace stress as teachers try to teach over the top of the constant noise it creates (Ofsted, 2014).

Importantly this relationship between the teacher's classroom management and LLCD was also found to be moderated by the gender of the pupil, illustrating Bronfenbrenner's pattern of gender (Darling, 2007). Thought to be initially generated by innate self-regulation differences, with male pupils typically lacking the ability to pay attention, act appropriately to different situations and resist distractions and female pupils consistently being associated with higher regulatory behaviour in the classroom (Weis, Heikamp & Trommsdorff, 2013). It was suggested that over time teachers have become accepting of male presentation of LLCD

(Kreisberg, 2017), and furthermore, that some classroom management strategies have become contingent on gender (Arbuckle & Little, 2004). Supporting this research has reported teachers having limited response to a male pupil displaying stereotypical male behaviours such as LLCD (Kokkinos, Panayiotou & Davazoglou, 2004). This limited response of *getting away with it* results in male pupils engaging in more LLCD as they perceive it to be less serious than their female peers whose perception of seriousness being fundamental to their ability to control themselves (Dursley & Betts, 2015). As with the mesosystem level analysis, investigations of the macrosystem will be qualitatively investigated.

Time.

Formally known as the chronosystem, the time facet of the PPCTM (Bronfenbrenner, 1995) is divided into three aspects (Bronfenbrenner & Morris, 1998). First, micro-time, this included the proximal processes that are investigated in the present study pertaining to the specific activities or interactions that influence behaviour. This also includes the sample's chronological age. It was thought advantageous to select a sample of pre-adolescence children. During adolescence (11years +) children enter an emotionally turbulent period both biologically and socially. Biologically the onset of puberty is typically associated with hormonal changes that can influence behaviour (Steinberg, 2005) sometimes generating behaviour problems not previously presented (Harms, Zayas, Melzoff, & Carlson, 2014).

A transition of social influence is also thought to occur, with the searching for independence and asserting autonomy (Youniss & Smollar, 1985; Kerr, Stattin & Ozdemir, 2012). Changing from the highly dependent and controlling family influences to those extending outside of the family context, such as peers, friends and the wider society, becoming increasingly more influential and important (Wentzel & Battle, 2001; Spera, 2005).

As the current thesis was investigating the contextual interaction of the pupils with peer groups, and the pupil with parents, it was thought advantageous to choose a pre-adolescent sample to help limit the shift from family to further external social influences.

Second, the present study pioneers a meso-time investigation of LLCD by carrying out a repeated measures design. This refers to the extent to which specific activities or interactions occur in a developing individual's environments, over a period of days, weeks or years, in this case over a one-year time span. Lastly, macro-time represents the historical change of events over a prolonged period of time that can shift cultural factors and in the present study is twofold. The present study considers macro-time first as the pupil and parent samples are classed as part of the 'net' generation, having been born into and raised in a world embedded in technology. And second by the long history of the management of low-level classroom disruption (Whipple, Evans, & Maxwell, 2010) including the potential of LLCD having become the classroom norm.

The Current Study

Following on from the literature review the chapter will now set out the hypotheses for the present study. As the review of the literature has indicated there are many bioecological factors that exist in the systems surrounding a typically developing individual that need to be considered when investigating LLCD. The present study proposed four over-arching research questions and several accompanying quantitative hypotheses.

1. What are the proximal and distal influences of low-level classroom disruption?
2. What are the directions of influence between LLCD and the investigated variables?
3. What is the stability or change of low-level disruption in the classroom over?
4. What is the teachers' perception of the impact low-level classroom disruption having for teachers and pupils?

Person.

The *person* referred to here is the individual characteristics of the person in relation to a developing individuals' presentation of LLCD. Each characteristic will be summarised separately followed by the proposals of the related hypotheses.

Gender.

Based on the literature general classroom misbehaviour is predominantly viewed as being male associated (Arbuckle & Little, 2004; Stephenson, Linfoot & Martin, 2000; Sullivan et al., 2014; Wheldall & Merrett, 1988). It is suggested that male pupils consistently present higher levels of classroom disruption than their female peers (Kaplan, Gheen, & Midgley, 2002; Arbuckle & Little, 2004). It is therefore surprising that consideration of gender is sparse in the LLCD literature with the majority of reports and research simply referring to the pupils as a whole group (Bennett, 2018; Elton, 1989; Floress & Jacoby, 2017; Hart, 2010; Haydn, 2014; Steer, 2004; Taylor, 2013; Woods, 2008). When gender has been associated specifically with LLCD the results have been mixed. Some research has inferred that males present higher levels than their female peers (Esturgo-Deu & Sala-Roca, 2010; Kreisberg, 2017) while other research has found presentation to be similar for both male and female pupils (Clunies-Ross et al., 2008).

The present study recognises this short fall in the LLCD literature and includes gender as a possible investigated predictor of LLCD. Taking into account the bioecological pattern of gender development (Bronfenbrenner, 1995) and previous robust finding associating gender and general classroom behaviour. It is expected that this trend will follow and a significant gender effect will be found for LLCD with the male pupils from the sample self-reporting significantly more LLCD than their female peers.

Executive function.

The literature suggests that LLCD explicitly presents similar to executive dysfunction (Ofsted, 2014). However, ~~as~~ the internal cognitions of the two constructs are thought to be different. The present study therefore includes a measure of executive function for the purpose of control as a covariant during the analyses.

Proneness to boredom.

Boredom in the classroom has been widely recognised across all levels of education and across cultures (Pekrun at al., 2010). The two-person model of state boredom is sufficient for the preliminary sections of the present study which will be examining the correlational relationships between proneness to boredom and LLCD (Bronfenbrenner.1974). The literature revealed that a monotonous atmosphere with the teacher, or subject topics, failing to engage the pupil LLCD increased (Robinson, 1975), supported by educational advisors laying the central responsibility for boredom on the teacher (Elton, 1989). Therefore, in keeping with the robust empirical evidence presented that states that proneness to boredom will be induced as a unidirectional proximal process; the present study proposes that a direct link will be found between proneness to boredom and the presentation of LLCD, with higher proneness to boredom predicting higher presentation of LLCD.

Resistance to peer pressure.

Finally, for the *person* factors the literature has suggested peer pressure as an influence of certain behaviours in the classrooms due to the conscious creating and maintaining of peer status. However, in regards to LLCD there seems to be a view that the pupils are not consciously displaying LLCD which may occur under the duress of peer pressure (Tennant, 2004; Woods, 2008). It would seem that over time there has been a shift of classroom norms negatively toward greater LLCD. The present study takes the view that

over a prolonged period of time LLCD has become the social norm in the classroom, no longer influenced by peer pressure. Therefore, it is expected that peer pressure will be negatively associated with LLCD, with low levels of resistance to peer pressure indicating higher LLCD.

Person characteristics hypotheses

H1: Low-level classroom disruption will be dependent on gender, with male pupils presenting significantly higher levels than their female peers.

H2: Proneness to boredom will predict low-level classroom disruption.

H3: Resistance to peer pressure will be negatively associated with low-level classroom disruption.

Context.

This section of the literature review summarises the investigated external antecedents of LLCD in context, followed at the end of each system summary by the predicted hypotheses.

Microsystem.

The microsystem encompasses the most direct influences on the presentation of LLCD within the developing individuals' immediate settings.

Home chaos. The literature review highlights that research associating home chaos to LLCD is sparse. Mixed methods research was carried out by Bartholomew (2015) with a similar sample to the present study, aged 9-11. At the integration stage of this study it was found that pupils presenting high LLCD also self-reported their home life as including factors associated with home chaos such as a lack of routines around meal times and maladaptive

bedtimes. Therefore, the present study suggests a link between home chaos and LLCD will be found, with higher home chaos will be associated with higher LLCD.

Parenting practices. The majority of research outlined in the literature review links maladaptive parenting practices to childhood higher-level disruptions (Loeber & Dishion, 1983). However, other reports have inferred a lack of childhood socialisation skills being related to a higher presentation of LLCD (Haydn, 2014; Ofsted, 2014). Primarily a child's social skills are thought to be taught by their parents via adaptive parental practices (Ladd & Pettit, 2002). It is predicted that the proximal process of the pupil being exposed to maladaptive parenting practices in the home context will be associated with higher pupil presentation of LLCD in the school context.

Television in bedroom. The literature review highlighted that having a television in the bedroom increased the hours spent viewing (Barr-Anderson et al., 2008). Empirical links between quantity of hours watching television and inattentive behaviours exist (Fuller et al., 2017). Important to the present study is the connection between inattentive behaviour and the explicitly presented behaviours of LLCD. To the current researcher's knowledge there is no literature associating an effect between having a television in the bedroom and a pupils' presentation of LLCD. Therefore, the current research looks to pioneer this line of enquiry. Based on the evidence presented in the literature review it is predicted that having a television in the bedroom will be associated with higher LLCD.

Screen time. The present study looks to address a gap in the literature to examine the link between a pupil's weekly screen time use and their presentation of LLCD. The present study sample can be regarded as children of the net generation (Oblinger & Oblinger, 2005). This generation being born into, and are now growing up in a world embedded in technology. Evidence supporting the net generation inference can be seen from reports that 84% of

children from this age group own electronic device (Ofcom, 2017). This supports one of Bronfenbrenner's (2003) six principles of development for the 21st century infant. He refers to the requirement of progressive interpersonal interactions to take place, which in turn, will lead to this exploration of the developing individual's imagination/creativity. He further inferred that traditional toys and activities would not fulfil children in the modern world of technology, and that audio-visual device such as computers interrupt this process.

Further to this the literature supported the cumulative influences of weekly screen time on the presentation of maladaptive behaviours, through the pupil's proneness to boredom (Zimmerman & Christakis, 2009). The present study samples are embedded in today's technological world; therefore, it is hypothesised that a direct relationship between higher weekly screen time and LLCD will be found. Also it is hypothesised this relationship will be further mediated by the pupils' proneness to boredom.

Sleep. The present study looks to pioneer research associating weekly hours of sleep specifically with LLCD. An adaptive sleep pattern through childhood is believed to be essential for maintaining sound psychological and physiological processes (Bagley & El-Sheikh, 2013). Research has suggested that an insufficient amount of sleep is associated with behavioural difficulties (Astill et al., 2012). Fundamentally, those difficulties can present as externalising behaviours, conducive to the presentation of LLCD. Therefore, the present study predicts that lower amounts of weekly sleep will be associated with higher presentation of LLCD. In keeping with the cumulative nature of the bio-ecological view, it is further predicted that weekly sleep will act as a mediator between weekly screen time and LLCD. Thus, supporting the time displacement theory inferring that the more hours of screen time that are consumed by the pupil the less hours of sleep they will be getting, leading to higher presentation of LLCD in the school context.

Extra-curricular activity. Extra-curricular activity in childhood is thought to reduce general behaviour problems (Massoni, 2011). To predict a direct link between extra-curricular activity and presentation of LLCD is tenuous. The limited literature available has tended to reported additional factors such as family socioeconomic status, parental worries regarding the neighbourhood and time displacement with technology use, creating partial mediator effects (Bartholomew, 2014). With the limited literature in mind, the variable of extra-curricular activity will be viewed as part of the exploratory element of the present study. It is tentatively hypothesised that a direct association with LLCD will be found, with less extra-curricular activities being associated with more LLCD. It is also predicted that this relationship will be subjective to mediator effects with socioeconomic status, parenting practices and screen time.

Microsystem hypotheses

H4: Higher chaos in the context of the home will be associated with higher low-level classroom disruption in the context of the school.

H5: Lower scores of parenting practices in the home context will be associated with higher pupil presentation of low-level classroom disruption in the school context.

H6: Having a television in the bedroom at home will be associated with higher presentation of low-level classroom disruption at school.

H7: A higher amount of screen time hours in the home context will be associated with higher levels of low-level classroom disruption at school.

H8: A higher amount of screen time hours in the home context will be associated with higher levels of proneness to boredom, leading to higher presentation of low-level classroom disruption at school.

H9: A lower amount of sleep hours in the home context will be associated with higher levels of low-level classroom disruption at school.

H10: Higher screen time use will be associated with lower amounts of sleep hours leading to higher presentation of low-level classroom disruption at school.

H11: Lower participation in extra-curricular activity will be associated with higher presentation of low-level classroom disruption, mediated by socioeconomic status, parenting practices and screen time.

Mesosystem.

The literature review highlighted the teacher as a mesosystem influence on LLCD. The repetitive nature of LLCD, and the teacher being held personally responsible for the amount of LLCD, has been inferred as influencing a teachers' susceptibility to professional burnout; thus leading to higher attrition rates among teachers (Freudenberger, 1974; Skaalvik & Skaalvik, 2017). In turn, research has found classrooms with supply teachers linked to higher pupil presentation of LLCD (Aloe et al., 2014). For the present study, the teacher is therefore regarded as a relevant mesosystem factor potentially influencing and being influenced by the pupils' presentation of LLCD. Mesosystem level analyses will be carried out qualitatively via thematic analysis techniques applied to the teacher interviews.

Exosystem.

The exosystem level investigation will explore the distal processes that occur outside of the developing individual's immediate bio-ecological systems. However, this process will have an indirect influence on a microsystem that does contain the individual and thus must still be included as possible antecedents to LLCD.

Socioeconomic status. Research has suggested that families with a lower socioeconomic status may have limited access to resources that help promote healthy child adjustment (Bradley & Corwyn, 2002; Silver et al., 2004). These can include environment resources, such as the funds to provide extra-curricular activity; scouts or youth clubs, or psychologically resources such as adaptive parental management skills. Both types have a direct effect on the child's presentation of behaviour in class (Capaldi & Patterson, 1996).

Research directly linking socioeconomic status to LLCD is limited but many of the relationships between factors in the literature review and LLCD have been inferred as being dependent on socioeconomic status. It has been suggested that home chaos is in fact a proxy term for families with low socioeconomic status; however, this has not always been found to be the case. A study by Hygge, Evans and Bullinger (2002) found that higher home chaos was related to a middle socioeconomic status sample. While another study, controlled for socioeconomic status but found that the effects attributed to home chaos were still significant (Petrill, Pike, Price & Plomin, 2004). Longitudinal research has also supported this discrepancy and confirmed home chaos factors such as noise levels over time negatively influence children's behaviour, remaining constant with no time changes to the family socioeconomic status (Evans, 2006). Therefore, due to this mixed evidence a measure of socioeconomic status was included as a control variable.

Parents screen time. Bronfenbrenner (1986) suggested that the rapid expansion in technology lends itself to investigations of how these advances not only influence family processes but also how these changes impact on developmental outcomes. The present study supports this ecological view and considers the prevalence of both child and parent technology use in the home today. Furthermore, the present research looks to extend the limited literature associating weekly screen time with LLCD. Investigations in relation to not

only the pupils weekly screen time, but also the parent/guardian weekly screen time use will be carried out. Based on the parental weekly screen time literature the present study predicts that parents' weekly screen time will influence pupils' presentation of LLCD in a positive direction.

However, by applying an exosystem model (Bronfenbrenner, 1979), a deeper investigation can take place across the child's intertwined ecological systems. A parent's personal use of screen time will not directly involve the child. However, it can be said time spent by the parent using screen time devices will affect their parenting practices, thus affecting the parent-child relationship, having repercussions on the child's behaviour at school. It is therefore predicted that increased parental weekly screen time will be associated with increases in the child's presentation of LLCD through the mediation factor of the child's own weekly screen time use.

Exosystem hypotheses

H15: Higher parent's screen time will be associated with the pupils' higher presentation of low-level classroom disruption.

H16: Higher parent's screen time will be associated with higher presentation of low-level classroom disruption mediated by the pupil's weekly screen time.

Macrosystem.

The literature review highlighted that the widely used behaviourist approach to classroom management may not be effective in curtailing incidences of LLCD. To gain control of behaviour based purely at the classroom level does not take into account any underlying processes that would influence the behaviour from elsewhere in the individual's developmental systems. Furthermore, the literature proposed that this dismissal of social

influence may lead to the pupils experiencing feeling of unfairness and frustration. This in turn was inferred as perpetuating the occurrences of LLCD, thus creating a vicious cycle of teacher dominance and pupils' negative response. This macro-level influence of classroom management strategy is likely to be present in the participating schools and needs to be included in the present study. This inclusion will be qualitatively explored via the teachers' interviews, and examination of the participating schools' behaviour policies.

Summary

There is an abundance of research literature available regarding general classroom behaviours; however, there exists gaps in the literature when narrowing down the behaviour to specifically reporting on low-level classroom disruption. Less attention has been paid to bio-ecological contexts that impact on a pupil's LLCD. Research has concentrated on the effectiveness of instructional practices of teachers and schools. An individual's presentation of LLCD may be better understood by understanding the influence of a broader range of factors as well as the relationships between these factors which are contingent on a pupils' complex, dynamic and reciprocal context (Bronfenbrenner, 1979). By including factors found outside of the classroom control such as demographic (gender, socioeconomic status and age), home (parenting practices, parents weekly screen time) and school (peer pressure) the present study aims to provide the bases for a better understanding of LLCD.

The present study aims to capture a bio-ecological picture of low-level classroom disruption. The independent variables included in this study lend themselves to the discussion of factors that enable bidirectional engagement in line with the bio-ecological system model (Bronfenbrenner, 1979) supporting, defusing or decreasing pupils' low-level classroom disruption in a primary school setting.

Chapter 4: Methodology

This chapter describes in detail the design approaches and methodologies for this mixed methods thesis. Part one provides a brief overview of the overall study. The second section, written in the first person, identifies the researcher's role in the present study, giving an account of their thought processes, assumptions and decision making that has evolved both before and during the research process. Third, the chapter outlines the rationale for using a mixed methods design including the choice of the guiding paradigm and consequential methodologies and a visual representation of the procedure. The fourth section reports on the quantitative strand of the thesis in detail, including details of participants, measures, ethical considerations and procedure. Lastly, the fifth section reports on the qualitative strand, including participant characteristics and the interview technique used.

Overview

This thesis reports on a mixed methods and repeated measures project. To carry out the present research in an effective way it was thought advantageous to follow Howe's (1988) suggestion that a consensus between post-positivist and interpretivist paradigms can be forged by following the pragmatic paradigm. Offering this combined view, the pragmatic approach enables the solving of questions in the real world (Creswell & Plano Clark, 20017). By utilising the different methodology from the opposing paradigms, a mixing of methods (Campbell & Fiske, 1959) has been adopted in the current study.

The quantitative data was collected over two time points with a year lag between each. Whilst previous research and reports have consistently acknowledged the potential influence of bioecological factors on the presentation of LLCD, to date, there is very little known research that has scientifically investigated and recorded the antecedents of LLCD. Therefore, the aim at time point 1 (T1) was to pioneer investigations into the multi-contextual

mechanisms underlying LLCD in order to address the first overarching research question: What are the proximal and distal influences of low-level classroom disruption? This investigation was literature lead from descriptive reports and accounts of LLCD.

Due to the lack of specific empirical research into LLCD, the literature review included empirical research which addressed types of behaviours similar to LLCD as was highlighted in Chapter 3. T1 results were accomplished by gathering data from pupil and parent samples and applying statistical techniques to produce reliable quantifiable data. This would be applicable to an explanatory 'top-down' hypotheses testing of probabilities providing objective results that could be generalised to the population and replicated by future research. This follows a post-positivist research paradigm that is dependent on the world having a universal law of reality separate from a human's perspective (Schultz & Schultz, 2015). The results are presented in Chapter 4.

The PPCTM (Bronfenbrenner, 1995) highlights the importance of change over time as a crucial dimension to a developing individual's behaviour trajectory. In keeping with this, the current study examined change to LLCD over the time period of a year. Crucially, no previous research has investigated LLCD over time; therefore, the present study addressed this gap in the literature by collecting quantitative data at a second time point, Time 2 (T2). By applying a repeated measures design, the present study addressed research question 2: What are the directions of influence between LLCD and the investigated variables? Also research question 3: What is the stability or change of low-level disruption in the classroom over time? These results are presented and summarised in Chapter 6.

Qualitative findings gathered via teacher interviews were concurrently collected at T1. This data further investigated the variables examined in the quantitative collection. However, fundamentally, the qualitative data provided up-to-date subjective accounts of the real impact that LLCD has in the classroom, to address overarching research question 4:

What is the teachers' perception of the impact low-level classroom disruption having for teachers and pupils? The current findings were compared with accounts that already exist in the LLCD literature (Ofsted, 2014), and to make salient the significance of the present study on both the teacher and the pupil. This was achievable by following an interpretivist research paradigm that trusts there are multiple realities, individually constructed by each person or group of persons subjectively. The results are presented and summarised in Chapter 7.

Mixed Methods Design

Mixed methods research relates to "existential reality" (Dewey, 1925, p.40), with the mixing of both the deductive objective (quantitative) with the inductive subjective (qualitative) views of the world. Originating in 1959, Campbell and Fiske (1959) first combined quantitative methods with qualitative methods, thus allowing a robust analysis using the strengths of one method to counterbalance the weaknesses of the other. This attitude is in keeping with the pragmatic view that the use of a 'what works' (Howe, 1988, pg.10) methodology in order to infer stronger and richer conclusions from the research than the one created by using mono-methods (Johnson & Onwuegbuzie, 2005). The mixed method approach can therefore be used to answer a wider range of research enquiries by addressing not only the relationship between variables but also why these relationships exist (Johnson & Onwuegbuzie, 2005). For example, quantitative results can be used to provide a robust correlation between two constructs, with the aid of qualitative research methods this correlation can then be interpreted further (Creswell & Plano Clark, 2007).

Although mixed methods research is not new, the lines of what qualifies as mixed methods and what does not has become somewhat blurred (Creswell, Plano Clark, Gutmann, & Hanson, 2003). Some researchers concentrate on philosophical assumptions (Tashakkori & Teddlie, 1998) and some on the practicalities of data collection (Creswell et al., 2003). However, guidelines on the rationale and execution of mixed method research are fast

becoming as stringent as those of quantitative and qualitative research methods. Green (1989) sets out five key functions of a mixed methods approach:

1. Triangulation; combining quantitative and qualitative results for the same construct
2. Complementary; using results from one method to enhance the other
3. Initiation; result contradictions that reframe the research question
4. Development; findings from one method inform the other method
5. Expansion; using both methods to expand research by investigating different inquiries about the concept.

The present study is undertaken with the expansion approach. This allows for the quantitative and the qualitative investigations to substantially expand the limited literature that is available by approaching LLCD from two different angles. Using quantitative methods and qualitative methods allows a robust analysis using the strengths of one method to counterbalance the weaknesses of the other. The quantitative design pioneered an investigation into the antecedents of LLCD, whilst the qualitative provided a contemporary account of the impact that LLCD has on the teacher and the pupil.

Strategies were also implemented to guide the process of how the mixing of the methods executed. Creswell and colleagues (2003) provide the most relevant typology of mixed method research specifying six designs as explained in Table 1. To address the aims of the current study in a thorough way, a concurrent transformed mixed methods approach was deemed appropriate. The quantitative data and the qualitative findings were analysed separately and then merged in an interpretative discussion, which addresses not only the relationship between variables but also provides evidence for why these relationships exist (Johnson & Onwuegbuzie, 2005).

Table 1

Features of Mixed Methods Design

Mixed Methods Design	Theoretical lens	Timing	Integration	Methodological Rational	Priority
Sequential Explanatory	Implicit (post-positivist)	Sequential (beginning with Quant)	Data analysis (connected) and Interpretation stage (Merged)	Complementarity	Quant
Sequential Explanatory	Explicit (constructivist)	Sequential (beginning with Qual)	Data analysis stage (connected) and interpretation stage	Development, Complementarity and/or expansion	Qual
Sequential Transformative	Explicit advocacy	Sequential-(beginning with Qual or Quant)	Data analysis stage (connected) and interpretation stage (merged)	Complementarity, Development and/or expansion	Quant or Qual data (sometimes both)
Concurrent triangulation	Implicit	Concurrent	Data analysis (separate) and interpretation stages (merged)	Triangulation	Equal- Both Quant and Qual data
Concurrent nested	Implicit or explicit	Concurrent	Data analysis (Data transformed and/or merged)interpretation stages (merged)	Complementarity initiation, and/or expansion	Unequal
Concurrent transformed	Explicit advocacy	Concurrent	Data analysed (Separately) interpretation stages (merged)	Complementarity initiation, and/or expansion	Equal or Unequal

Note; Qual=Qualitative, Quant=Quantitative (Creswell, Planto Clark, Gutmann & Hanson, 2003)

In order to understand the multistage format of a mixed method procedure, a visual model showing the sequence of research events is recommended (Morse, 1991; Tashakkori & Teddlie, 1998). In summary, Figure 4 explains the overall order of the present study design. Unlike most transformative mixed methods research, the present study did not give priority to either the quantitative results or the qualitative findings. The information from both sections of this mixed methods design was deemed equally important to the explanation of low-level class room disruption.

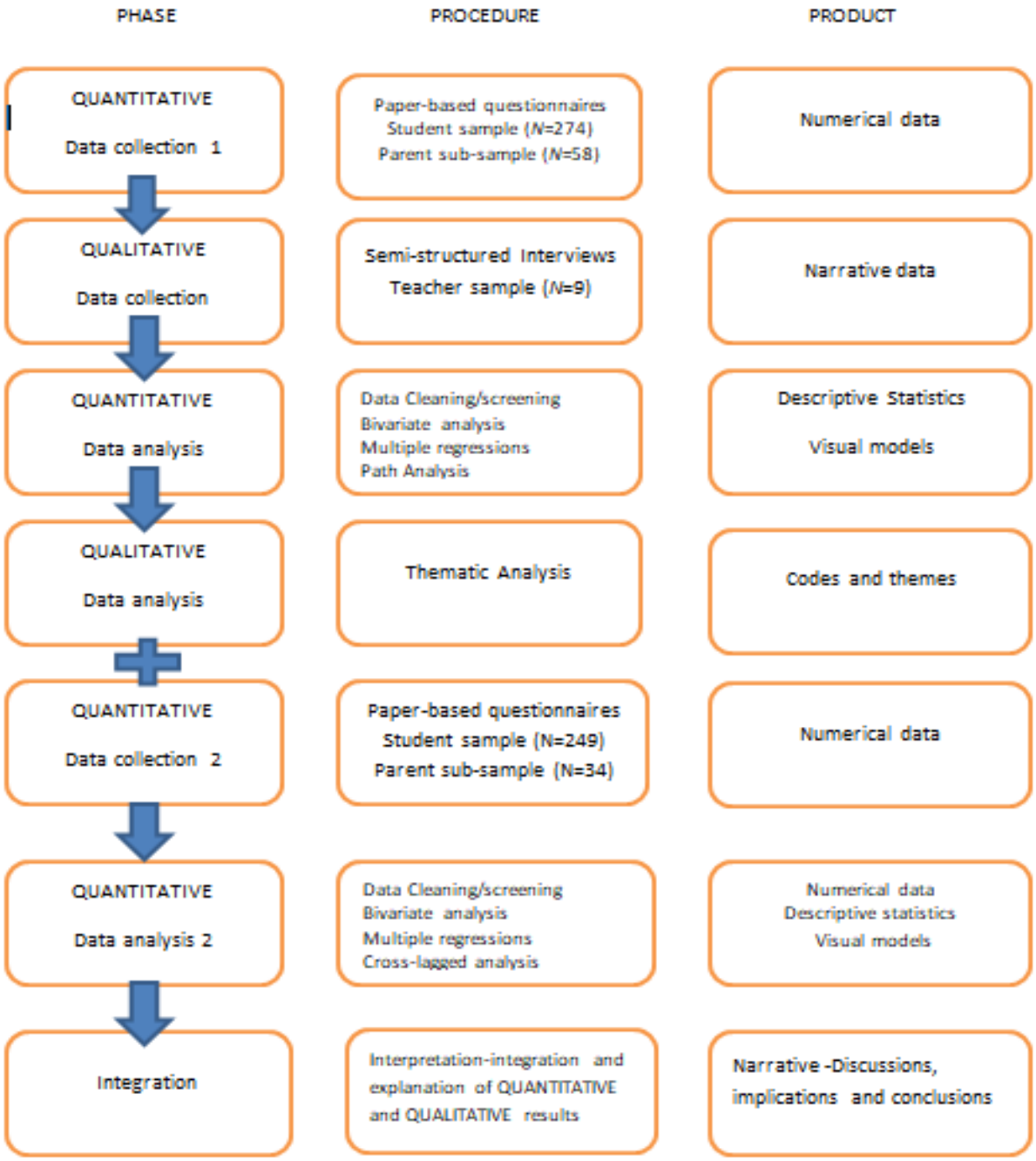

Figure 4. Model of Mixed Methods Procedure Followed in the Current Research

The Researcher's Role

Social science research typically involves the investigator or the investigating team acting as the primary tool for gathering and analysing the data (Creswell et al., 2003). This research was no exception with the author acting as the primary investigator. The researcher can be seen as having an influence over every stage of the research process from recruitment choices, to data collection to interpretation of results. To provide credible transparency to the current research, the role of the researcher is now presented. The majority of this thesis is presented in the third person; however, for the purposes of presenting a personal representation of the researcher's role this section will be written in the first person.

Even though I see my role as a researcher purely as a constructivist, acting as the facilitator rather than a creator of information, I recognised that my professional and personal interest in the subject of LLCD could be viewed as influencing the research process. In order to aid my role as a facilitator, it was decided to investigate LLCD through a robust theoretical lens that would guide the research decisions that were being made. As one of the main research aims was to recognise the multi-contextual interactions that can influence LLCD, the PPCTM was selected as the guiding framework (Bronfenbrenner, 1995). This guiding framework recognises that factors in one context can influence behaviour in another context. The literature review (Chapter 2) revealed behavioural factors from across the systems of a typically developing individual in relation to LLCD. However, these have never been followed up with empirical research. Therefore, the factors that were investigated for the quantitative strand of the present study were pre-determined if they: 1) had been previously mentioned in the LLCD and/or general classroom behaviour literature, 2) are influential across multiple systems. The hypotheses were then set based on this prior literature.

For the qualitative strand of the present study the role of the researcher is said to be an instrument to the data collection, that all the qualitative data is mediated through the researcher (Denzin & Lincoln, 2003). It is therefore advisable for me to explain my role and previous knowledge of LLCD as part of the research, including reference and description to any bias or assumptions surrounding the research topic, and experiences that qualifies me to carry out the research (Greenbank, 2003).

In 2011, I embarked on an undergraduate degree with the intention of becoming a psychology teacher. Soon after starting, I realised a need to gain vocational experience and began volunteering as a teaching assistant at a secondary school. Being back in the classroom after more than 20 years, and experiencing it from the other side of the desk, certainly was an eye opener. I observed that in any typical classroom, on any typical day, once a lesson started many pupils would start to display various acts of disruption such as talking, making noises or moving around. This behaviour seemed not to be confined to any particular pupil or any particular lesson. Furthermore, these behaviours seemed not intentional acts, purposefully carried out to cause disruption to the classroom.

Individually these behaviours, termed as low-level disruption could be regarded as minor. However, it was obvious to me that these behaviours were having a cumulative impact on the lesson. A marked amount of the lesson time was being absorbed by the teacher managing LLCD, moving their attention from one incident, to another. These observations led me to consider the consequential effect that these interruptions were having on the pupils' learning time, and thus, on their academic achievement. In addition, during discussions with teachers I discovered that frustrations over LLCD were regarded as part of their job. As a volunteering member of the teaching staff I also experienced professional frustration, knowing that due to LLCD the pupils were not fully able to access the lesson that was being taught. In addition to my professional concerns, as I finished my undergraduate degree, the

Ofsted report–*Below the radar: low-level disruption in the country's classroom* (2014) was published, which raised points in line with my personal concerns. It was whilst reading this publication that I began to realise that the impact of LLCD was wide spread across England. As a mother to three children who were currently in the school system and therefore likely to be experiencing LLCD as a factor of their education, I became personally concerned.

These professional and personal concerns led to me applying for, and gaining a scholarship to carry out, a Master's degree in Childhood and Adolescent Research. I had already decided that LLCD would be the focus of my research and dissertation. The main findings from my mixed methods research were novel. The quantitative results found no significant relationship between parenting and LLCD, whereas, internet use was a predictor of LLCD with higher internet use associated with higher levels of LLCD. This was further supported by the qualitative interviews (N=8) with all children in the higher LLCD category describing their electronic device use. These results encouraged me to want to uncover other antecedents of LLCD, and in turn, I was granted a scholarship to extend my research and begin a PhD, presented in this thesis.

I would suggest that as I commenced with my PhD research, I could have been regarded as having an *emic* viewpoint of LLCD, or as viewing LLCD subjectively as an insider with personal feelings and beliefs. However, as the PhD process has continued I now suggest I have developed a more *etic* view, and am able to consider LLCD, from the outside as a more objective observer (Punch, 1998).

Ethical Considerations

The research was passed by Canterbury Christ Church University Ethics Committee in the Faculty of Social and Applied Sciences Research (Reference: 16/SAS/272). Throughout this research process, a series of ethical dilemmas were addressed. Primarily

consent for the research to take place was sought and consequently given by the schools' head teachers prior to T1. Acting as loco parentis the head teachers granted continuous permission for the researcher to come into the school and work during both T1 and T2, on prearranged dates fixed with the head teacher. The line of communication was constantly kept open between the head teachers and the researcher, to ensure the data collection worked without interruption to the everyday life of the pupils and school.

Further to the head teachers' consent, additional parental consent was sought for all pupils. An information letter was sent home via the school explaining the research topic and process. The rights to withdraw and procedures for anonymity and confidentially were explained. The parents were asked to send back a return slip instructing the school that they wished their child to opt-out of the research. Even though the sample was contacted via the initial opt-out sampling method, all the pupils were given an individual opportunity to opt-out themselves at the start of each data collection session. The pupils were informed of the research that was taking place and introduced to the researcher. Each time data was collected it was further explained that any information given by the pupil would be treated in confidence and the process of anonymity was explained to the pupils. Each pupil was given a participant number which was recorded on any completed measures, no data collected had pupil names on them.

To minimise any personal embarrassment or uncomfortable feeling that opting-out may create for a pupil, instructions were given that any pupil not wishing to participate were to either carry on with the work being done in the class or to read quietly, therefore not requiring the pupil to publicly opt-out, thus not drawing possible peer attention to any particular child. The present study remained mindful to adhere to the conventions of the England and Wales Children Act of 1989, which states that children have the right to be

consulted, to have all the information available, to have freedom of speech and opinion, and have the right to challenge decisions made on their behalf (Marrow & Richards, 1996). As the study involved children, the researcher obtained a full Disclosure and Barring Service certificate (DBS) via Kent County Council.

Recruitment and the Study Setting

The present research upholds the view that social science research should take place in the field (Bronfenbrenner, 1977). The task of recruiting started with viewing the Medway Council's list of primary schools in the North Kent area of England. This area was chosen primarily due to the locality to the researcher's base. An information letter (Appendix 1) explaining the research study was posted out to a substantial number of schools from the list. Schools were contacted if they had all contact details present on the Council's list (i.e. head teachers name and full school address). The letter detailed the study and invited schools to contact the researcher to arrange a meeting. The researchers existing contacts in the field of education, including friends, family and former work colleges were also approached via letter and/or email. From this twofold recruitment exercise, three schools were recruited.

For purposes of anonymity, the schools were allocated a letter and will be further referred to as School G, School L and School M. School G was recruited via a family contact of the researcher. School L was an existing contact from a previous research project. School M was sourced from the letter drop to Medway schools. School L and School M are located in the county of Kent; School G is situated in the county of Cambridge-shire.

Regional characteristics.

Table 2 details the Office of National Statistics (2016) data, highlighting the similarities and differences between the schools and with that of the national figures. As

School L and School M are located in the same region they are presented in the same column and referred to as L/M. Observations from the data show that School G is situated in a lower populated area, than Schools L/M. This difference is explained as School G is rural, whereas School L/M is urban. This is further reflected in the employment types associated with the areas. The area for School G has a higher percent working with in the transport sector, also being higher than the national figure; whereas area L/M presents a higher percent of professional work force (IT, scientific and health care) than area G. This difference in skill set is reflected in the reported average full-time weekly wage, for area G it is £504.00, being below the national wage and in area L/M it is higher at £566.10 and above the national average of £541.00.

School characteristics.

Table 2

Regional Characteristics of Sample Schools

	School G	Schools L/M	National
Population of Region	100,000	276,000	
Education: NVQ4 or above	28%	25%	37%
Education: No Qualifications	10.1%	8.3%	8.6%
Employed	72%	72%	74%
Gross weekly full-time wage	£504.00	£566.10	£541.00
Job: Human health/social care	9.7%	15.1%	13.3%
Job: Professional scientific/technical	3.2%	4.1%	8.4%
Job: Information technology	1.1%	2.6%	4.2%
Job: Transport	7.3%	5.2%	4.7%
Unemployment Level	3.7%	6.8%	5.1%
Unemployed: Long term sick	43%	18%	22.5%
Unemployed: Lone Parent	1.1%	1.3%	1%

Table 3 presents the reported characteristics of the schools (Ofsted, 2016). As can be viewed the three schools were similar in cohort size. However, school M was lower on all other characterises, especially the children having free school meals. This information must be considered when interpretation of the study results.

Table 3

Schools Statistics

	School G	School L	School M
Pupil Population	399	383	412
Special Educational needs	1.5%	0.5%	0.7%
English as an additional language	5.5%	9.7%	1.4%
Free school meals	28%	27%	9.2%
OFSTED report	Good (May 2014)	Not available	Good (March 2015)
Year 6 pupil reaching Level 4 reading, math/writing	64%	67%	84%

Quantitative Strand

Participants

In order to reduce the risk of type I and type II errors a priori power analysis was conducted. The calculation was based on the recommended minimum expected values for power of 80% and 5% significance levels and an anticipated medium effect size of 0.15. With 12 continuous predictor variables a main sample size of 113 was recommended to yield adequate power (Jones, Carley, & Harrison, 2003). Reducing the alpha level to 0.01 increased the recommended sample size to 154. The total amount of pupils for the three schools combined was estimated at being 360. In actuality data collection for T1 resulted in 277 data sets, a big enough sample size to reduce the risk of type I and type II errors and to allow for attrition over the two data collection periods.

Two criteria determined the sample, one developmental and the other practical. First, it was thought advantageous to select a sample of pre-adolescent children. During adolescence (12years +) children enter an emotionally turbulent period both biologically and

socially (Steinberg, 2005; Youniss & Smollar, 1985). Biologically the onset of puberty is associated with hormonal changes that can influence behaviour (Steinberg, 2005), sometimes generating behaviour problems not previously presented (Harms, Zayas, Meltzoff, & Carlson, 2014). A transition of social influence also occurs, with an increasing need for independence and asserting of autonomy (Youniss & Smollar, 1985, Kerr, Stattin & Ozdemir, 2012). There is a shift from family influences to those extending outside of the family context (e.g. peers, friends and the wider society), becoming increasingly more influential and important (Wentzel & Battle, 2001; Spera, 2005). The current thesis was investigating the following: 1) the contextual interaction of the pupils with peer groups and 2) the pupil with parents. Therefore, it was thought advantageous to choose a pre-adolescent sample before the shift from family to external social influences becomes more salient. The second criterion was more pragmatic. As the study was repeated measures, with a year passing between the two data collection points, the pupils needed to be available in the same schools at both data collection points. Thus at the first wave of data collection, Key Stage Two pupils from years four and five were chosen, thereby allowing for their transition into year five and six, respectively.

Pupil measures

Pupils provided demographic details of their gender, age and school year. Pupils ticked the appropriate box to record if they had a television in their bedroom (Yes or No). Furthermore, participating pupils completed two separate questionnaire booklets containing the following measures.

Low-level classroom disruption.

The Low-Level Classroom Disruption Scale (LLCDS: Bartholomew, 2015) was used to assess the levels of presentation of LLCD. The LLCDS is an 8 item scale which can be self-reported by pupils, and/or carer reported by teachers. The scale was developed during

previous research, with a similar sample specifically for measuring the prevalence of LLCD (Bartholomew, 2015). The scale development had been directly based on information from the Ofsted (2014) document, *Below the radar: Low level disruption in the county's classrooms* that specifically reported on LLCD. Within this report teachers (N=1048) rated the most frequent low level type behaviors that occurred in their classroom, with the most prevalent listed as: Calling out, disturbing other children, fidgeting and fiddling with equipment, talking and chatting, not getting on with work, purposely making noises to gain attention, answering back or questioning instructions and swinging on chairs (Ofsted, 2014). These 8 statements were used to create the item pool for the LLCDS, with a three-point Likert scale (1= never, 2= sometimes 3=a lot) with a possible range of 8-24 with a higher score indicating a higher display of LLCD.

During the initial development of the LLCDS, the questionnaire was administrated to primary school pupils (N=122) from years 5/6 and their teachers (N= 8) across 2 schools in the South-East of England. The collected data assessed the structural validity of the measure. Exploratory principal factor analysis determined item selection. The correlation matrixes revealed the presence of many coefficients of .3 and above, indicating good strength of relationship between the items. Furthermore, test of sphericity reached statistical significance indicating equal variance of distribution throughout the items (Bartlett, 1954). Factor extraction revealed all 8 items strongly loaded onto 1 factor. As the objective was to create a simple unidimensional scale, in order to measure pupil level of LLCD the outcome of a one factor scale was deemed successful. Assessment of internal consistency was carried out, with good internal validity results found, Cronbach alpha coefficients were reported for pupil self-reporting of .81 and teacher carer report of .89 for the initial sample (Bartholomew, 2015). For the current study similar Cronbach's alpha coefficients were found, with a pupil self-reported result of .83 at both T1 and T2, and a T1 teacher result of .93. Furthermore, at T1 to

highlight any potential response bias the pupils' and teachers' data was analysed, resulting in a Pearson's correlation coefficient of $R = .55$, $p < .001$.

Proneness to boredom.

The Boredom Proneness Scale was used (Struk, Carrriere, Cheyne & Danckert, 2017). This eight-item measure contains questions such as "it is easy for me to concentrate on my activities" and "among my friends I am the one who keeps doing something the longest'". This was measured on a five-point Likert scale from 1=strongly disagree to 5=strongly agree, with higher scores indicating a higher tendency towards proneness to boredom. Past research has reported modest Cronbach alpha coefficients of .57 to .61. (Gannon, Ciardha, Barnoux, Tyler, Mozova, & Alleyne, 2013; Schroeter, Oxtoby, Johnson & Steinberger, 2015; Shaw, et al., 2010). For the present study, Cronbach's alpha values were .68 at T1 and .80 at T2.

Resistance to peer pressure.

The Resistance to Peer Influence scale (Steinberg & Monahan, 2007) measured resistance to peer pressure with the present study sample. This scale contained 10 items, for example, "Some people go along with their friends just to keep their friends happy". Responses were coded on a four-point scale, ranging from "really true" to "really not true". Higher scores indicate greater resistance to peer influence. In previous research, examination of the scale's internal consistency was conducted using four samples (Steinberg & Monahan, 2007) with Cronbach's alpha indicating adequate reliability ranging from .70 to .76. Data was not collected at T2 for this variable as no significant result was found at T1; therefore, it was excluded to make data collection T2 more efficient.

Screen time and sleep.

To assess pupils' screen time use and sleep the present study's choice of measure was guided by the International Study of Childhood Obesity, Lifestyle and the Environment

(ISCOLE: LeBlanc et al., 2015; Katzmarzyk et al., 2013). In keeping with the sample age for the present study this cross-sectional study had gathered data from 9-11 year olds (M=10years, N=5,844). This data was gathered across 12 different countries between 2011-2013, with the primary aim to investigate relationships between lifestyle behaviors and obesity with-in countries and between different countries (LeBlanc et al., 2015). In conducting this research ISCOLE created the Diet and Lifestyle questionnaire (Katzmarzyk et al., 2013), that included questions pertaining to food consumption, sedentary behaviour, sleep, screen time use and well-being. For the present study the questions relating to screen time use and sleep were extracted and adapted from the ISCOLE questionnaire.

To assess screen time the ISCOLE questionnaire asks a number of questions. First, 'on a school day how many hours did you watch TV?' The present study pupils were given a choice of none, less than 1 hour, 1 hour, 2 hours, 3 hours, 4 hours, or five or more hours. Their answer was multiplied by 5 to achieve a weekday sub-total of TV hours. Second, on the ISCOLE questionnaire the pupils were asked, 'On a school day how many hours did you play video or computer games or use a computer for something that was not school work?' For the present study to reflect the increases in mobile device use this question was adapted to, 'On a school day, how many hours did you play video or computer games, use a computer or hand held devices, such as mobile phones for something that was not school work?'. Again, the answer was multiplied by 5 giving a sub-total for other (than TV) screen time use. These 2 questions were then asked with consideration being given to the weekend and multiplied by two, to achieve a weekend sub-totals. The four sub-totals, for weekdays and weekends were summed to achieve a weekly screen time score in hours.

To gain a record of the pupils' sleep, the questions were asked 'what time do you go to bed on a school night' and 'what time do you get up on a school day'. The amount of hours asleep was calculated and then multiplied by five to give a weekday sub-total. This was

repeated for the weekend, and the two sub-totals were added to give a total weekly sleep score in hours.

Extra-curricular activity.

Pupils were given a list of activities including: organized clubs (e.g. scouts, army cadets and Sunday schools) and non-club based activities (e.g. bike riding, swimming and skate boarding). Qualifying criterion for extra-curricular activity was guided by the Office of National Statistics' definition that "Leisure time is spent doing non-compulsory activities" (OECD, 2009). The pupils were asked to tick any activity they participated in, on a scale of 1=occasionally, 2=monthly or 3=weekly. The list included additional space to include any clubs or activities not on the list, these were scored as before. A simple tally of the scores gave a total with higher scores indicating higher levels of extra-curricular activity.

Home chaos.

Home chaos was measured using the revised six item Confusion, Hubbub and Order Scale (CHAOS; Matheny, Wachs, Ludwig, & Phillips, 1995). Items included "there is always a TV on in our house" and "you can't hear yourself think in our house". For each item there were three responses on a scale: 1=very true, 2=quite true and 3=not true. The scores for the six items were summed, with a higher score indicating a higher home chaos level. This self-report measure was designed for children aged 9-12 and revised from the original full-length inventory. In previous research it was found to have an acceptable level of internal reliability of around .63 (Petrill, Pike, Price, & Plomin, 2004). The revised CHAOS scale did not perform as well for the present study's sample and produced slightly less than acceptable internal consistency with a Cronbach's alpha coefficient of .46 at T1 and .58 at T2.

Executive function.

The present study measured three main cool executive functions of flexibility, working memory and inhibition (Poland, Monks, & Tsermentseli, 2015). Composite tasks were administrated to pupils individually to examine and record each: flexibility (The Tower of Hanoi task: Welsh, 1991), working memory (The Digit span task: Ashendorf & Reynolds, 2013), and inhibition (The hand game: Flynn, 2007). Scores from all three task were added together to give a total executive function score, the higher the score the higher the level of executive function skills. As no significant result was found for executive function at T1, no data was collected during T2 in order to make this more efficient.

Mediating variables measures

In addition to the individual characteristics and contextual influences, the bioecological theory makes salient the subjective environment, stating, "The primacy of the phenomenological over the real environment is steering behaviour" (Bronfenbrenner, 1979, p.24). Further to this, the present study included self-perceptions as defined by The Harter Self-Perception Scale (Harter, 1990). These were included in order to start an investigation into the role of self-representation as a functional mediator of LLCD, or as a direct cause of LLCD.

From The Harter Self-Perception Scale (Harter, 1990) six dimensions, three deemed relevant to the current study, namely: 1) scholastic competence, 2) behavioural conduct and 3) global self-worth. The remaining three factors of self-perception, (athletic competence, social competence and physical appearance) were deemed the least relevant, and due to time restrictions of both data collection and data analysis were omitted. A pilot collection of data was carried out in one class at one of the participating schools. During the pilot collection The Harter Self-Perception Scale's (Harter, 1990) was included as part of a questionnaire

booklet containing two additional scales, with the booklet being completed as a class task with the researcher reading each item and the pupils marking their individual booklets. This was deemed appropriate as to speed up the process of data collection, thus lessen interruptions to the school day.

However, during the pilot data collection it became apparent that as a group task The Harter Self-Perception Scale's (Harter, 1990) proved complex for the majority of the pupils. A snow-ball effect was created with pupils interrupting the process to ask questions or voice that they didn't understand what they were to do. Due to this it was deemed appropriate to adapt the Harter self-perception scale (Harter, 1990) to reduce the complexity. In doing this the scholastic competence variable lost internal validity with Cronbach alpha coefficients for T1 being .24. Therefore, due to this the decision was taken to exclude scholastic competence from the data analyses, leaving behavioural conduct and global self-worth. It was also deemed advantageous to rename behavioural conduct as *appropriate conduct* for ease of interpretation. To date, there is a limited inclusion of appropriate conduct and global self-worth in LLCD literature. Therefore, a brief recognition of each in regards to general classroom behaviour will now be delineated.

Appropriate conduct (previously behavioral conduct)

An adaption of the sub-scale from The Self-Perception Profile for Children (SPPC; Harter 1985) was used to assess the pupil's levels of appropriate conduct. This sub-scale taped into how a pupil behaves, does the right thing, acts in an appropriate manner and avoids misbehaving. The adapted version contains six items, e.g., "some kids often do not like the way they behave" Pupils were instructed to read the statement, consider themselves and then indicate whether the description is *really true, true, really not true or not true.* For the present study, the Cronbach alpha coefficient were moderate, for T1 .62 and for T2 .68.

Global self-worth.

Global self-worth (often referred to as self-esteem) is defined as the value that an individual place on themselves, developed when intrapersonal comparisons are made between external actions and attitudes and internal senses of the self (Harter, 1985). If these comparisons are mismatched, an adaptive self-esteem will be compromised. The most powerful influence on these comparisons comes from parents and peers. The vast majority of research investigating parental and peer links to behaviour through self-esteem has been conducted with adolescents. The preadolescent period of development is also a significant time when self-esteem is developing (Harter, 1985) due to the dominant source of support from home (Franco & Levitt, 1998), as well as the influence of peers as a source of self-evaluation.

Self-esteem (or self-worth) has been shown to act as a mediator between behaviour and peer relationships. As self-esteem is formed primarily from interactions with social partners, if there is a class with a high frequency of behaviour problems, and in turn positive exchanges with their peers are limited then there is a greater risk of low self-esteem (Henricsson & Rydell, 2004). For example, a study with primary school children found that pupils with externalising behaviours were seen as less attractive to their peers leading to poor peer status (Hymel, Bowker & Woody, 1993). In keeping with this view, externalising behaviours associated with LLCD, such as tapping a pen or constant interrupting, have been described by peers as being highly distracting and not favorable (Haydn, 2002).

The adapted version of the scale contains six items, e.g., “some kids often do not like the way they behave” Pupils were instructed to read the statement, consider themselves and then indicate whether the description is *really true, true, really not true or not true.* This sub-scale taps into self-esteem directly as a general perception of the self, not into domain-

specific abilities. For the present study, the Cronbach alpha coefficient was moderate at T1: .50, and good at T2: .73.

Parent measures

The parent/guardian completed a booklet recording the following information: gender and age of parent completing the questionnaire and relationship to the child. Socioeconomic status was calculated from a composite of scores for individual maternal and paternal education (1= did not finish secondary school up to 6=higher than postgraduate) and occupations (1=Never worked or unemployed up to 8=higher manager/administrative). Cronbach alpha coefficient for socioeconomic status was reported at T1 of .46 and at T2 .51.

Parents screen time.

Parents reported the number of hours of screen time they consumed on a typical weekday (including all electronic devices and television), which was multiplied by 5 to achieve a week day sub-total. Parents were then asked to report the number of hours of screen time they consumed on a typical weekend day (including all electronic devices and television), which was multiplied by 2 to achieve a weekend sub-total. The two sub-totals were summed to achieve a total of weekly screen time in hours (LeBlanc et al, 2015).

Parenting practices.

The nine item short version of The Alabama Parenting questionnaire (APQ) was used to assess three dimensions of parenting practices (Elgar, Waschbusch, Dadds & Sigvaldason, 2006); positive parenting (sample item: You let your child know when he/she is doing a good job with something), inconsistent discipline (sample item; You feel that getting your child to obey you is more trouble than it's worth) and poor supervision (sample item; Your child fails to leave a note or to let you know where he/she is going). Previous research with a community sample (*N*=133) reported internal consistency of the APQ as moderate α =.63.

The same study sample produced moderate Cronbach's alpha values for each subscale: α=.57 for positive parenting, α=.62 for inconsistent discipline and α=.61 for poor supervision (Elgar et al., 2006). Overall for the present study's internal consistency of the APQ was moderate at T1, .60 and .51at T2. With moderate to good Cronbach's alpha values produced for each subscale: T1 α= .78 for positive parenting, α=.60 for inconsistent discipline, and α= .60 for poor supervision. T2 α= .62 for positive parenting, α=.75 for inconsistent discipline, and α= .62 for poor supervision.

Procedure

At T1 parental information letters were sent out via the schools for all year four and five pupils with opt-out slips attached (Appendix 2). Fourteen opt-out slips were returned. In addition, at the class teacher's request a whole year four class (N=28) from school G was excluded from the study. Bronfenbrenner is cited as stating that developmental psychology should avoid "the science of the strange behaviour of children in strange situations" (1977, p.513). The present study supports this interpretivist view, stipulating that in order to investigate real life the research must take place in a natural environment with the researcher becoming an integral part of the setting. Thus, the research was carried out in the field (i.e. the schools). Bronfenbrenner (1977) also stated that research should avoid children being in contact with "strange adults for the briefest possible periods of time" (p.513). To help minimise investigator effects or the "strange adult" the research period was spread over seven weeks for T1 and five weeks for T2 with the researcher taking on the role of teaching assistant.

T1 data collections took place during the summer terms of 2016 and the researcher was present in each of the three schools for one day a week over seven consecutive weeks. T2 data collection took place during the summer term of 2017 and the researcher was present in

each of the three schools for one day a week over five consecutive weeks. Each of the days the researcher attended the schools they assisted in all the participating classes. The data collection process started after the researcher had completed two full days in each school.

The pupil self-reporting questionnaires were organised into two booklets (Appendix 3 and Appendix 4). Due to the environment of the schools being busy and somewhat unpredictable the administration of the questionnaires was carried out in an opportunist manner, with the researcher organising with staff potential time slots that fitted in with the school day. In doing so there was no organised fashion to data collection, more a 'when and where' pattern. Each booklet session was administrated to the pupils in the classroom setting. The researcher read out instructions informing the pupils that this was not a test and that there were no right or wrong answers, just their answer. They were also informed that they should complete their own booklet independently from their neighbours. The researcher read out loud each item to the entire class while the pupils scored their individual answer booklet, providing support to pupils as required. Each booklet took an average of 15 minutes to complete. The researcher's role of teaching assistant continued throughout the entire period of data collection.

Over the seven-week data collection period of T1 pupil absences resulted in a further reduction to the number of participants to 277. By T2 some of the children who had completed T1 data collection had left the school and some new children, who hadn't completed T1, completed T2. Only the data sets from pupils who participated at both T1 and T2 were used for data analysis at T2 (N=249).

The information letter sent out at the beginning of T1 included an electronic link to a Qualtric survey that the parents were invited to complete. However, after a period of five weeks the response rate was poor, with only nine parent/guardian responses, of which only

five were complete. It was then decided to attempt an additional wave of parent recruitment by sending out paper copies of the parental questionnaires home via the schools. Of the 360 copies sent out 56 were returned. Three responses were invalid, therefore at T1, 58 parental responses were included in the study (i.e. School G *N*= 11, School L *N*=19 and School M *N*=28). Almost all parents were biologically related to the child participant (*N*=57, Missing=1). With mothers accounting for a higher number (*N*=52) of respondents than fathers (*N*=6). Over 60% of the parent participants were between 35–44 years old. Parents were thanked for their participation by optional entry into a prize draw to win £30 of shopping vouchers.

For T2 only paper copies of the parent questionnaire were sent out. These were sent only to the families who completed the T1 questionnaire (*N*=58). The response rate at T2 was 62% and one response was declared invalid due to no corresponding pupil data having been collected at T2 (participant 297). Thus 34 parental booklets were valid at T2 (i.e. School G *N*= 6, School L *N*=13 and School M *N*=15). At T2, all of the participants were biologically mothers of the child participant (*N*=34), with 57% of the parent participants being in the age bracket of 35–44 years. Parents were thanked for their ongoing participation by optional entry into a prize draw to win £30 of shopping vouchers.

Qualitative Strand

The following section of this chapter will report on the qualitative data collection including details of the participants, the interviews and details of the transcriptions.

Participants

Convenience sampling was the method of recruiting participants. Leading on from recommendations highlighted in Haydn et al. (2014) it was thought advantageous to recruit members of the teaching profession already known to the researcher. The idea was that they

would be more likely to give honest and open responses to the questions being asked due to a formally built up trust. Conversely, there is a need to be fully transparent about having opted for a convenience sample, as there may be response bias (Cohen, Manion, & Morrison, 2002). However, as the qualitative section of the present research is more explanatory than exploratory the validity will be upheld by comparisons being made with the Ofsted report (2014). Members of staff from the participating schools agreed to be interviewed (N=3) and existing educational contacts (N=5). All interviewees were employed in schools located in the same recruitment areas of Kent or Cambridgeshire. The eight interviewees (7 females and 1 male) worked at primary level, five teachers, three teaching assistants and one student teacher (Figure 5).

There are two caveats highlighted at this point in the report. First, acknowledged is made that the teaching staff interviewees are employed in different roles within the classroom. A class teacher would primarily be leading the preparation and delivery of a lesson, and could be viewed as having personal responsibility for the success of the teaching and learning that takes place. Thus an incident of LLCD which interrupts this teaching and learning process, could have a direct personal impact on the class teacher. Whereas, a teaching assistant can be typically viewed as providing a supportive role for the class teacher, with a lessor amount of responsibility. Therefore, an interruption to the proceedings by an incident of LLCD could be viewed as having a more indirect impact on the teaching assistant and be perceived as less personal. Second, the gender of the interviewee needs to be considered in relation to how male teachers would differ from female teachers in their perception of LLCD. Research has suggested that female teachers have higher levels of classroom stress, specifically associated with pupil behaviour than their male counterparts (Lassen, Chiu, & Choplain, 2008). In relation to LLCD it has also been found that female teachers are more sensitive to externalising behaviours that male teachers (Hopf &

Hatzichristou, 1999). These classroom role and gender differences could have implications on the interviewees' perceptions of LLCD, and furthermore need to be considered when interpretation of the qualitative findings takes place.

Teacher	Position held	Year group	Gender
T1	Teaching assistant	4	Female
T2	Class teacher	3	Female
T3	Teaching assistant	3	Female
T4	Student teacher	4	Female
T5	Class teacher	6	Female
T6	Class teacher	5 & 6	Male
T7	Class teacher	Reception	Female
T8	Teaching assistant	4	Female

Figure 5.Teachers Characteristics

Interviews

To address research question 4, the interviews were conducted using a semi-structured format. The semi-structured interview is hybrid in nature (Galletta, 2013). First, this allowed the following empirically driven questions derived from Ofsted (2014) to be addressed:

1. How often does low-level disruption take place?
2. Does low-level disruption affect learning negatively?
3. Can teacher cope with low-level disruption?
4. Do school behaviour policies make a difference?
5. What can be done better?
6. How involved are parents in supporting high standards of behaviour?

Secondly, semi-structured interviews can move to more open ended questions, encouraging exploration of previously given details and additional topics. Together these two

dimensions allowed the teacher's individual experiences of LLCD to be collated, thus yielding a complex lived experience of LLCD from the interviewees' perceptive.

To ensure the interviewees only considered the specific construct of LLCD when addressing the questions, interviews were started with a defining description of LLCD. Participants were encouraged to give their own, professional and personal views of LLCD and were reassured that any information given would be anonymous. The interviews were conducted in the work place (school), in the participants' home environment, or in the researchers' home environment. They were recorded with the participant's full consent. Interviews are not without disadvantages and an element of interviewer bias could be present with the interviewer and the interviewee having previous relationships. However, this was considered beforehand, and despite the interviews being carried out in informal atmosphere, professionalism was upheld throughout the process from both the interviewer and the respondent.

Transcribing

The interviews were transcribed verbatim by the project researcher and two undergraduate students from the funding University. These transcripts were read and reread by the researcher in order to familiarise the data. The documents were uploaded on to the QSR International's NVivo 11 qualitative data analysis Software in order to collate themes and sub-themes.

Chapter 5: Quantitative Results-Time One

This chapter reports on the quantitative data collected to address T1 research question 1: Using quantitative tools how do proximal and distal factors influence low-level classroom disruption with a Key Stage 2 sample? The data was collected via a battery of questionnaires and tasks to provide a pioneering inspection of the bio-ecological processes that may influence LLCD in a sample of Key Stage Two children (N=274, 8-10years). Furthermore, questionnaire data was collected from a parent/guardian sub-sample (N=58). This chapter is set out in three sections. First preliminary analysis, including cleaning and screening of data and descriptive reports is presented. The second section reports on the bivariate correlations, multiple regression models and path models which examine the bio-ecological antecedents of LLCD and thirdly, the chapter concludes by providing a brief summary.

Preliminary Analysis

This section of preliminary analyses reports on the characteristics of the main sample and the sub-sample, and provides T1 descriptive statistics, followed by details of the data preparation, including missing values and normality of distribution, lastly this is followed by the plan of analyses.

Sample characteristics.

Table 4 presents the characteristics of T1 samples. The number of pupils with a television in their bedroom was high, and at the top of end of the expected range of between 45-75% (National Sleep Foundation, 2017; Ofcom, 2014; Rideout et al., 2010; Yland et al., 2015). The number of pupils that participated for school G was considerably lower than the other two schools. This was due to a year 4 class teacher withdrawing from the study due to personal reasons.

Table 4

Sample Characteristics T1

	Sample		Sub-sample	
	N	%	*N*	%
Gender				
Male	136	49	28	49
Female	138	51	30	51
Total	274	100	58	100
Age				
8 Years	28	10	5	9
9 Years	123	45	27	47
10 Years	121	44	25	43
Missing	2	1	1	1
Total	274	100	58	100
School				
G	63	23	12	20
L	108	39	19	33
M	103	38	27	47
Total	274	100	58	100
TV in bedroom				
Yes	191	70	41	71
No	81	29	17	29
Missing	2	1	-	-
Total	274	100	58	100

Descriptive statistics. Table 5 shows the descriptive Statistics for the variables at T1.

Table 5: *Sample Descriptive Statistics for all Variables T1*

Variable		Possible Range		Study Range				95% CI	
	N	Min	Max	Min	Max	*M*	*SD*	Lower	Upper
Low-level disruption	274	8	24	8	24	12.59	3.36	12.19	12.99
Proneness to boredom	274	8	40	8	35	20.55	5.68	19.87	21.22
Resistance peer pressure	273	10	40	13	36	24.65	4.22	24.15	25.15
Global self-worth	274	6	24	6	24	17.75	3.65	17.32	18.19
Appropriate conduct	274	6	24	8	24	17.34	3.56	16.91	17.76
Executive function	274	-	-	5	22	15.31	3.66	14.86	15.75
Extra-curricular activity	274	-	-	0	28	8.23	5.64	7.56	8.90
Sleep (Hours)	265	0	-	30	98	70.14	9.40	69.00	71.27
Screen time (Hours)	270	0	70	0	70	28.71	15.81	26.82	30.61
Home chaos	274	6	18	6	18	11.45	2.40	11.17	11.74
Parent screen time	58	0	-	7	35	18.21	8.54	15.96	20.45
Parenting practices	56	9	45	31	45	40.32	2.96	39.53	41.12
Socioeconomic status	55	0	30	1	18	10.71	4.02	9.62	11.80

Preparation of the Data Set

The data sets were input onto the computer software programme SPSS for windows version 23.0 (SPSS Inc, 2016).

Missing values.

Missing values are not uncommon in social science studies and it is very rare to obtain a complete data set (Pallant, 2013). However, it is imperative that any missing values in a data set are investigated and dealt with accordingly. Missing values present an error of measurement and those cases with missing values must be viewed differently from those with no missing values until deemed otherwise. Due to the nature of the missingness this can lead to a biased sample.

Two cases from the main sample were missing four (28%) variable values, indicating a systematic pattern of missingness. The raw data was consulted and revealed that the missing values were for variables from the second set of questionnaires, which indicate towards missing completely at random (MCAR) (Rubin, 1976) and that these two pupils did not complete the second questionnaire booklet. It was also thought beneficial due to the extremely high percent of missing values for these two cases (Participants 169 and 246) that they were removed from any further analysis.

For T1, consideration was given to the mechanism of the remaining missing values. Due to the small number and random pattern of missingness a declaration of MCAR was considered (Rubin, 1976). It was observed that these missing values from either a variable or a case were random in pattern and could be classified as 'ignorable' (Rubin, 1976). However, due to the strict qualifying criteria that the missing value must have independence from the variable in question or on any other variable in the data (Myers, 2011) this could not be

concluded, thus, a missingness mechanism of MAR was declared. In support of this declaration the remaining missing values all have a percentage total under the recommended 10% ceiling guideline (Bennett, 2001) and so were to remain in the data set for analysis. The amendments made resulted in a sample size of $N = 274$.

It was decided that due to the missing values being MAR and MCAR that a pairwise method of exclusion would be employed in all analysis. As the participant number for the family sub-sample was already considered small (T1 $N = 58$) exclude pairwise was chosen over listwise exclusion, which would have the potential to reduce the sample size even more and have bias repercussions on estimates made (King, Honaker, Joseph, & Scheve, 2001). An acknowledgment is made here that using a pairwise deletion technique (that computes the standard of error by using the average sample size across the analysis) can result in an underestimated, or overestimated, standard of error (Myers, 2011). However, due to the small quantity of missing errors in both the sample and the sub-sample any change due to estimation will be considered minimal.

Normality of distribution.

All statistical tests in the main analyses require the assumption of normality to be met. This assumption accepts that the data collected is from a normally distributed population and so results can be generalized to such a population.

Graphical and statistical results were investigated to assess the normality of the data sets. Normality checks were first run using the Kolmogorov-Smirnov test. A non-significant result indicates no significant difference from normality. Results displayed in Table 6 show that for some variables this assumption was violated and data indicated a significant difference from normality. However, further visual examinations of the histograms revealed reasonably normal distribution, supported by straight lines plotted on the normal Q-Q plots;

all suggesting observed values were similar to the expected normal distribution. Furthermore, the 5% trimmed mean for all variables were not overly distant from the mean, indicating that outliers were not a cause for concern.

In support of this, skewness measures the symmetry of data distribution and Kurtosis will give a measure of the peak-ness or flatness of the distributed data values (Tabachnick & Fidell, 2001). A normal distribution value for skewness and kurtosis is equal to zero. The level of skewness and kurtosis that is acceptable before normality is violated is somewhat ambiguous. Tabachnick and Fidell (2001) posit that values within the range of - 2 to + 2 of zero suggest normal distribution. However, Kline (1998) suggests for skewness a value under -3 to + 3 is acceptable for normality and for kurtosis that value is no greater than - 8 to + 8. Table 6 shows all variables have values between – 2 to + 2 for skewness and -6 to + 6 for kurtosis. These results indicate and support the previous check and suggest data is within acceptable levels for the assumption of normality to be accepted. Therefore, even though outliers were present, these are not expected to affect future analysis (Pallant, 2010) and no further action was taken.

Table 6

Normality Statistics T1

Variable	*M*	5% *M**	Skew	Kurtosis	Kol-Sm[a]
Low-level classroom disruption	12.59	12.34	1.14	1.06	.00
Proneness to boredom	20.55	20.50	.16	-.58	.00
Extra-curricular activity	8.23	7.92	.69	.26	.00
Sleep	70.14	70.69	.58	-.23	.00
Screen time	28.71	27.99	.58	-.23	.00
Global Self-worth	17.75	18.00	-.1.16	2.32	.00
Executive function	15.31	15.53	-1.09	.37	.00
Appropriate conduct	17.34	17.46	-.42	-.25	.01
Resistance to peer pressure	24.65	24.64	-.02	-.09	.19
Home chaos	11.45	11.41	.26	-.17	.00
Parent screen time**	18.21	17.93	.27	-1.06	.20
Parenting quality**	40.32	40.51	-.92	1.01	.03
Socioeconomic status **	10.71	10.86	-.57	-.14	.09

Note: * 5% Trimmed mean **=Sub-sample [a] = Kolmogorov-Smirnov

Plan of Analyses

No studies have attempted to theorise and consider the broader ecological factors associated with LLCD, and no consideration has been given to the interrelations of biological and/or social ecologies that may nurture or impede LLCD. Due to the unknown aspects of LLCD the present study incorporates a somewhat exploratory style of analyses to address the quantitative section of T1 research question. This way of carrying out investigations is reflected in the PPCTM taxonomy. Bronfenbrenner (2001) states that developmental science should be a series of progressive formulations with the results of each step informing the

next, that a "discovery mode" (p.3) rather than a mode verification takes place, therefore the plan of analysis was as follows.

First, Pearson's bivariate correlation coefficients were used to understand the primary relationships between LLCD and the predictor variables. Based on the bio-ecological systems hypothesis, variables that were found to be significant were further examined using a multiple regression model. This will tell how well the informed set of variables is able to predict LLCD and how much unique variance in LLCD each independent variable explains. In order to provide estimates of the scale and significance of the theorised causal relationships between the variables, a path analysis was carried out with an input path diagram; as predicted by previous analysis, and an output path diagram denoting the results of what was actually found from the data.

Inferential Results

Bivariate correlation

Pearson correlation coefficients were calculated in order to test the association between proximal and distal processes, identified using the bio-ecological framework and the pupils' self-reported outcome variable of LLCD. Analysis was limited at this stage to determining the strength, the direction (either negative or positive) and statistical significance of the associations (Table 7). As Pearson's correlation only reports linear relationships, scatterplot diagrams were examined in order to address the issue of Type II error. A Type II error will occur when the null hypothesis is not rejected and it is assumed that the two variables are independent and not correlated, when in fact they could be dependent but have a circular or square relationship. All scatterplots checks were found to be satisfactory. The following summaries of the bivariate correlations are structured in keeping with the *context*

facet of the PPCTM (Bronfenbrenner, 1995) framework starting with the individual person factors.

Individual person factors.

Several correlations were found to be significant in the predicted direction. Proneness to boredom was positively associated with the presentation of LLCD (r=.30) indicating that higher levels of proneness to boredom were associated with higher levels of LLCD. A negative correlation was found between appropriate conduct and increases in LLCD (r=-.43), indicating a lower level of appropriate conduct being related to a higher level of LLCD. Negative associations were found between global self-worth and LLCD (r=-.21), indicating that higher levels of global self-worth were associated with lower levels of LLCD. Gender was found to have significant association, with male pupils displaying higher presentation of LLCD than their female peers (r=-.27). Contrary to the prediction resistance to peer pressure was not significantly associated with LLCD.

Microsystem.

There was evidence that proximal processes within the home microsystem were related to processes within the school microsystem. Home chaos and LLCD were positively correlated (r=.16); whereby higher levels of chaos in the home context were associated with higher levels of LLCD in the school context. Pupils who reported having a television in their bedroom also reported higher levels of LLCD, with television in bedroom and LLCD being significantly associated (r=-.12). Furthermore, a significantly positive relationship between the pupils' screen time and LLCD was found (r=.30); thus, higher hours of reported weekly screen time were associated with higher levels of LLCD. There was also found to be a significant relationship between extra-curricular activity and LLCD (r=-.12), indicating lower participation in extra-curricular activity being associated with higher presentation of LLCD.

There was no significant association between pupils' weekly sleep or parenting practices (positive parenting, inconsistent discipline and poor supervision) and LLCD.

Exosystem.

Results found no exosystem relationships between the distal process of parent's weekly screen time use and the pupils' presentation of LLCD for this sample or the relationship between socioeconomic status and LLCD.

Table 7

Pearson Correlation Coefficients T1

Variable	2	3	4	5	6	7	8	9	10	11	12	13	14	15
N	274	274	274	274	274	274	274	274	274	274	274	58	58	58
1 Low-level disruption	**-.27****	**.30****	-.07	**-.21****	**-.43****	-.04	**-.12***	**-.12***	.02	**.30****	**.16****	-.02	-.23	-.04
2 Gender	1	-.10	-.03	.03	.20**	-.10	.08	.08	.02	-.15*	-.02	.05	.12	-.02
3 Proneness to boredom		1	-.22**	-.25**	-.29**	-.22	-.04	-.31**	.03	.17**	.17**	.25	-.16	-.29*
4 Resistance to peer pressure			1	.18**	.09	-.01	.04	.05	-.08	-.04	.03	.23	-.03	-.01
5 Global self-worth				1	.40**	.07	.02	.19**	-.05	-.13*	-.10	.12	.12	.07
6 Appropriate conduct					1	.06	.03	.23**	.13*	-.10	-.10	-.12	.17	.15
7 Executive function						1	.09	.11	.09	-.14*	-.11	.08	.21	.39**
8 Television in bedroom							1	.07	.07	-.18**	-.04	-.16	.13	.30*
9 Extra-curricular activity								1	.01	-.00	-.04	-.28*	.05	.20
10 Sleep									1	-.15*	.02	-.08	.08	.02
11 Screen time										1	.19**	.24	-.07	-.22
12 Home chaos											1	.05	.18	-.14
13 Parent weekly screen time												1	-.13	-.01
14 Parenting practices													1	.16
15 Socioeconomic status														1

Note: * $p<0.05$. **$p<0.01$, ᵗ $p<.06$ (2-tailed) Sub-sample: 13, 14, 15 (N=58). Gender coded- 1=male, 2=female. TV in Bedroom coded- 1=Yes, 2=No

Multiple Regression Analysis

The exploration of initial bivariate relationships informed the second stage of analysis. The PPCTM Framework (Bronfenbrenner, 1995) acknowledges that very rarely will there be a single independent factor influencing an outcome, all significantly related independent variables; gender, proneness to boredom, global self-worth, and appropriate conduct, television in bedroom, screen time, extra-curricular activity and home chaos were simultaneously regressed onto the outcome of LLCD. A multiple regression model was produced. Unlike bivariate correlations, which only show a single independent variable's association with the dependent variable, multiple regression analysis can address questions relating to the interrelationships of multiple sources of influence on an outcome, in this case LLCD.

Additional research questions.

By using this method, a holistic picture of LLCD can be developed with an encompassing view of the overlapping effects of the independent variables. This included the additional variables of global self-worth and appropriate behaviour, both of which had not been previously included in research questions and/or hypotheses. Additional research questions were posed.

1. How well does this set of variables (gender, proneness to boredom, global self-worth, appropriate conduct, home chaos, screen time, extra-curricular activity and television in bedroom) predict the outcome of LLCD?
2. Which variables best predict LLCD accounting for any shared variance.

Preliminary analyses.

Preliminary analyses were carried out to satisfy the assumptions associated with linear regression. The sample size of 274 was deemed adequate in fitting with the criterion equation: $N > 50 + 8m$ (m=number of IVs) as recommended by Tabachnick and Fidell's (2001). Singularity checks revealed all bivariate correlations of independent variables were below the recommended .7 (Pallent, 2010). Therefore, all variables were retained in the analysis (Appendix 5). Collinearity statistics showed no tolerance values less than .10 and no variance inflation factor (VIP) values above 10, therefore, the assumption of multicollinearity was met (Appendix 6). Lastly, the potential of extreme univariate outliers was examined due to a high Mahalanobis distance score of 35.70, exceeding the chi-square critical value of 26.13 with eight independent variables (Pallant, 2001). Four cases were excluded due to having standardised residual scores outside of the recommended, >3.3 or < -3.3 (Participants 203, 205, 229 & 254 were excluded), resulting in a final data set of 270 participants.

Addressing the research questions.

Firstly, the multiple regressions were calculated to address research question 1: How well does this set of variables (gender, proneness to boredom, global self-worth, appropriate conduct, home chaos, screen time, extra-curricular activity and television in bedroom) predict the outcome of LLCD? The results of the regression analysis indicated a significant regression model (F (8,255) =13.86, p<.00), with the combined variables predicting 30% of the variance in LLCD.

Secondly, the results for the regression analysis were analysed further to answer research question 2: Which variables best predict LLCD accounting for any shared variance? In the regression model, once the shared variance was taken into account the person variable of global self-worth no longer had an association with LLCD. Furthermore, the microsystem

influences of home chaos, TV in bedroom and extra-curricular activity on LLCD were also no longer significant in this regression model.

Once placed in the model 4 of the variables continued to have significant associations with LLCD for this sample, with appropriate conduct recording the highest significant beta value (β= -.33, p<.01), then screen time (β= .20, p<.01), gender (β = -.16, p<.01) and lastly proneness to boredom (β= .14, p<.05). Thus, to answer question 2, the person characteristic of appropriate conduct was the best predictor of LLCD over and above the shared variance of gender, proneness to boredom, global self-worth, and television in bedroom, screen time, extra-curricular activity and home chaos.

Model summary.

The model indicated that if all the included variables are held constant a decrease by one unit on the appropriate conduct scale would increase LLCD by .30 (on the LLCD scale) (β = -.33, p<. 01). A screen time increase by one unit (i.e. one hour), would see LLCD increase by .04 (β = .19, p<. 01). As proneness to boredom increased by one unit, on the proneness to boredom scale, LLCD would increase by .08 (β = .14, p<. 05) (Table 8). The significant predictors of LLCD (screen time, appropriate conduct, proneness to boredom and gender) were then investigated further for moderation and mediation effects with path analysis.

Table 8

Multiple Regression of Variables on LLCD T1

Variables	*B*	*SE B*	*β*
Gender	-1.00	.34	-.16**
Proneness to boredom	.08	.03	.14*
Global Self-worth	-.01	.05	-.02
Home chaos	.08	.07	.06
Screen time	.04	.01	.20**
Appropriate conduct	-.30	.05	-.33**
TV in bedroom	-.39	.36	-.06
Extra-curricular activity	.02	.03	.03

Note: *p<.05, **p<.01, Gender 1=Male, 2=Female. TV 1=Yes, 2=No.

Path Analyses

A path analysis was conducted to examine the direct and indirect pathways between the person variables (appropriate conduct, proneness to boredom), the home context variable (screen time) and the outcome of LLCD. By utilising path analysis, moderation and mediation effects can also be examined, thus, providing a holistic analysis of the antecedents of LLCD. The path models were created using SPSS AMOS extension.

Hypotheses.

Empirical research has suggested a proximal process in the microsystem context of the classroom, between the pupil and academic boredom, resulting in the presentation of maladaptive behaviour (Pekrun etal., 2002; Daschmann., 2011). Moreover, this proximal process has also been reported as negatively influencing the presentation of LLCD (Ofsted,

2014). Past literature suggests the proximal process of pupils' screen time influences LLCD (Steer, 2004). The previous analyses of the current study (i.e. bivariate correlations and the regression model) have added support for these associations. Furthermore, and supporting previous research (Chritakis & Zimmerman 2009), the variables of proneness to boredom and screen time were significantly correlated for the present study sample (Table 7). Interrelationships for the variables screen time, proneness to boredom and LLCD were examined. Firstly, it was hypothesised (1) that the relationship between screen time and LLCD will be partially mediated by proneness to boredom. That increased hours of screen time at home will increase the pupils' proneness to boredom, thus increasing their presentation of LLCD at school.

Secondly, the bivariate correlations and the multiple regression results found that pupils' appropriate conduct was the strongest predictor of LLCD for the present sample. No previous research has investigated this relationship. Examination of the intercorrelations of predictor variables (Table 7) found appropriate conduct was significantly associated with proneness to boredom. Therefore, it was hypothesised (2) that the relationship between appropriate conduct and LLCD would be partially mediated by proneness to boredom. Whereby, increases in pupil appropriate conduct would lead to decreases in pupils' proneness to boredom thus decreasing their presentation of LLCD. A path model was proposed (Figure 6).

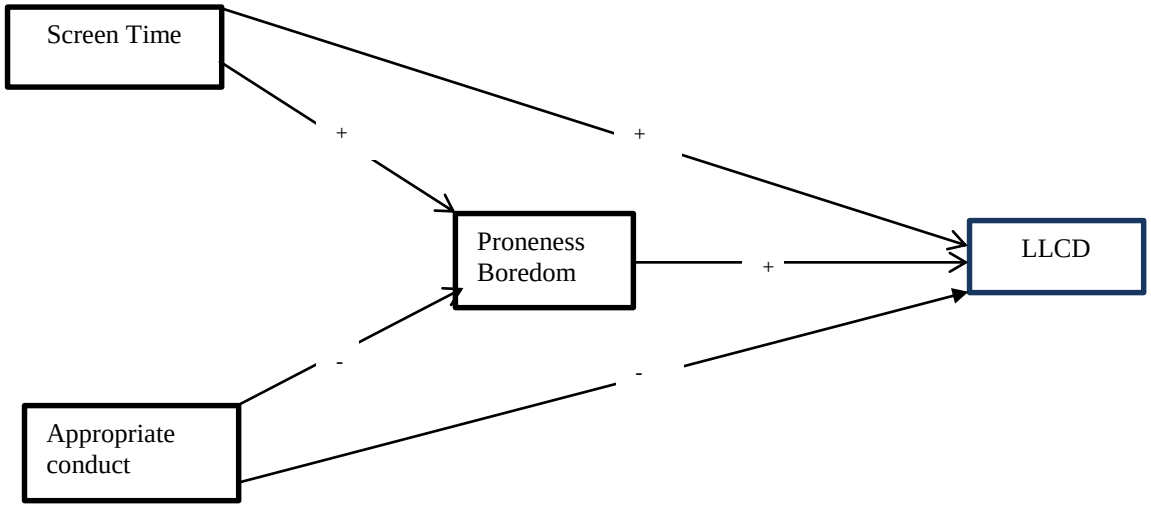

*Figure 6.*Hypothesized pathways between screen time, proneness to boredom, appropriate conduct and LLCD.

Testing the fit of the hypothesised model.

Using a maximum-likelihood method of parameter estimation a concurrent examination of predicted direct and indirect pathways was carried out in order to assess the goodness of fit between the hypothesised model and the data. Several indices of fit were used to determine whether the hypothesised model provided an acceptable goodness of fit with the actual data. No significant difference between the observed data and the predicted data was found (x^2=2.73, df=1, p=.10).

However, as the chi-square statistic has been identified as being an overtly strict criterion for declaring goodness of fit (Nicholls, Polman, & Levy, 2012) additional goodness of fit indicators are reported. Increment values, comparing the hypothesised model against a standard model exceed the recommended cut-off value of >.90 (Hu & Bentler, 1999) with a Normative Fit Index (NFI) value of .98 and a Comparative Fit Index (CFI) value of .99, and the Hoelter's (1983) adequacy of sample size was also met, both for .05 and .01 > than the recommended 200 (380 and 655 respectively) indicating the sample size (N=270) was satisfactory for the model.

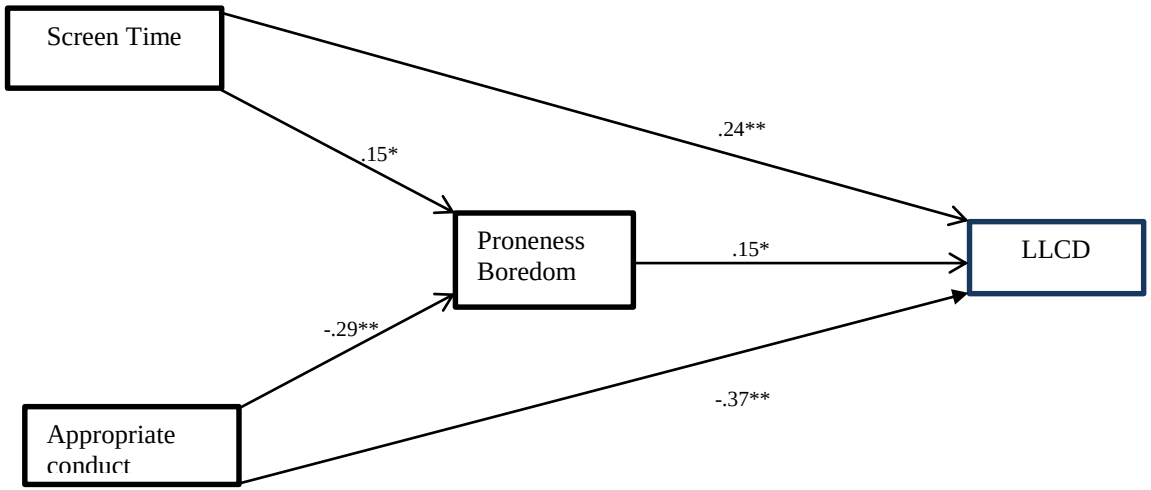

Figure 7. T1 Path analysis model of the relationship between variables. Note: Path estimates represent standardised regression coefficient weights. *N*=270. ** p<.01. *p<.05

Model results.

The indirect effects of appropriate conduct on LLCD through proneness to boredom, and screen time on LLCD through proneness to boredom, were tested using bootstrapping procedures. Specifically, 1000 bootstrap samples were randomly generated. The 95% bias-corrected confidence intervals were examined. Evidence of a significant indirect pathway was found for confidence intervals not containing a zero. The path model was developed to explore the relationships between screen time, proneness to boredom and appropriate conduct with LLCD with several direct and indirect effects emerging from the analyses.

The hypothesis (1) stated that the relationship between screen time in the home context and LLCD in the school context would be partially mediated by proneness to boredom. Path estimates revealed that a significant indirect effect was present between screen time and LLCD through pupil's proneness to boredom (p=.035, CI [.003, .060]). Put simply, this indicates that greater hours of pupils' screen time at home is related to higher levels of proneness to boredom, and thus in turn, is related to a higher presentation of LLCD at school.

Contrary to the exploratory hypothesis (2) stating that the relationship between appropriate conduct and LLCD would be partially mediated by proneness to boredom, no significant path was found (p=.058, CI [-.093, .000]). Indicating that for this sample the relationship between appropriate conduct and LLCD was independent of a pupils' proneness to boredom.

Path Analysis-Gender Investigation

At this point in the analysis it was appropriate to further investigate the significance of gender found in the preliminary analysis. Official reports and empirical research in relation to gender and LLCD have been limited. However, it has been inferred that male pupils present higher levels of LLCD, compared to females (Esturgo-Deu & Sala-Roca, 2010; Kreisberg, 2017). Support for this is found in the current data which found gender to be significantly

correlated with LLCD (r=-.27, p<.01), and remained so in the regression model when other variables were accounted for (β=-.16, p<.05). Therefore, the path model above was retested separately for males and females in order to address five further research questions:

1. Is the effect of screen time on LLCD different for male and female pupils?
2. Does the direct effect of proneness to boredom on LLCD differ for male and female pupils?
3. Does the direct effect of appropriate conduct on LLCD differ for male and female pupils?
4. Does proneness to boredom mediate the relationship between screen time and LLCD differently for male and female pupils?
5. Does proneness to boredom mediate the relationship between appropriate conduct and LLCD differently for male and female pupils?

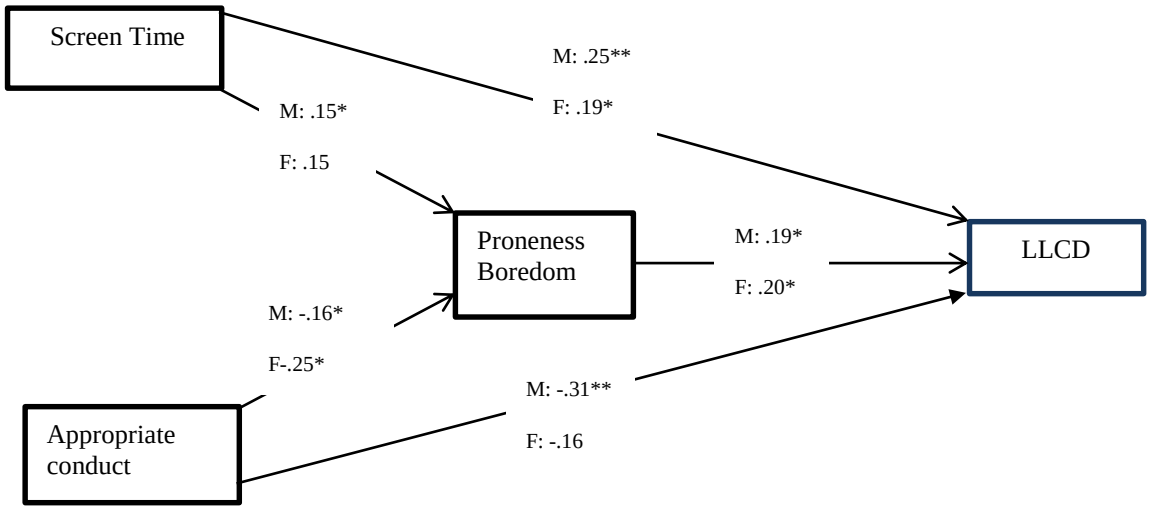

Figure 8. Path analysis of the relationship between gender conditions. Note: Path estimates represent standardised regression coefficient weights. Notes: ** p<.01, *p<.05. Male (N=136): $\chi 2$=1.231 (df = 1), p=.27, NFI = 0.97, CFI = 0.99. RMSEA = 0.04 CI= Low .00 to High .24, PCLOSE p value of .34. Hoelter's (1983) =414 and 728 respectively. Female (N=136): $\chi 2$=3.714, (df = 1), p=.06, NFI = 0.90, CFI = 0.92, RMSEA = 0.00 CI= Low .000 to High .048, PCLOSE p value of .095. Hoelter's (1983) =911 and 1275 respectively.

Model results.

The previous path model was reassessed separately for male and female pupils to explore the relationships between screen time, proneness to boredom and appropriate conduct with LLCD. To address research questions 1 and 2 results showed that the direct pathways between screen time and LLCD, and proneness to boredom and LLCD, remained significant for both males and females separately indicating that these direct pathways were similar for both male and females.

The results that addressed research question 3, does the direct effect of appropriate conduct on LLCD differ for male and female pupils? A direct negative pathway indicated that a higher level of appropriate conduct would lead to a lower presentation of LLCD, but only for the male pupils. There was no significant direct pathway between these two variables for the female pupils.

Previously for the sample as a whole, no significant indirect pathway was found from appropriate conduct to LLCD mediated by proneness to boredom (p=.06, CI [-.093, .000]). This result was found to remain with no significant result found for either male pupils (p=.07, CI [-.097, .001]) or female pupils (p=.06, CI [-.110, .000]).

However, a gender difference was found for the pathway between screen time and LLCD mediated by proneness to boredom was found. For the male pupils, a significant mediation effect remained (p=.03, CI [.003, .079]), however, for the female pupils this mediation effect fell away with no significant result (p=.11, CI [-.003, .070]). Put simply, for the male pupils the more hours of weekly screen time a pupil uses at home, the higher the presentation of LLCD at school, explained by an increase in their proneness to boredom.

Summary

A series of analyses were carried out to address the T1 quantitative research question: What are the proximal and distal influences of low-level classroom disruption?

First, and as was hypothesised (H2) higher proneness to boredom was found to be significantly associated with higher LLCD, for both the male and female pupils. Put simple, for both male and female pupils an increase in their level of boredom in the classroom was associated with an increase in LLCD. This finding supports the thoughts of the educational based establishments (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2005) who infer LLCD is mainly influenced by classroom context factors, such as ineffective teaching and poor subjects (Robinson, 1975). The theory of state boredom (Fisher, 1993) can be applied to this relationship, suggesting that boredom arises as a result of the interaction between the individual and the situation, with no regard for wider contextual influences.

Similarly, for both the male and female pupils a model of association was found to exist between screen time in the micro-context of home and the pupils' presentation of LLCD in the micro-context of school; with more hours of screen time associated with more LLCD. This was as predicted (H7) and added support to the results found in the pilot study to the present study that suggested a similar relationship between internet use and LLCD (Bartholomew, 2015).

Even though the previous two results were found to be similar for both the male and female pupils, some gender differences were found to be directly associated with LLCD. This result adds to the literature that supports a gender difference for presentation of LLCD (Kreisberg, 2017), and as was predicted (H1) the male pupils presented significantly higher levels of LLCD then their female peers for the present research sample. Fundamentally, for the male pupils the relationship between screen time and LLCD was further mediated by their proneness to boredom, as was hypothesised (H8). For the male pupils only this cumulative

effect supports the theory of trait boredom (Vodanovich, 2003). Unlike the theory of state boredom, this theory accounts for additional influences outside of the proximal environment in which the individual is. Inferring that regular over arousal or stimulation (Eastwood et al., 2012) of an individual in one context can influence the behaviour of the individual in a different context. In relation to the male pupils in the present study, increased hours of screen time in the home context, influenced higher proneness to boredom in the classroom, which in turn, predicted a higher presentation of LLCD.

Gender differences were found between the proximal *person* characteristic of appropriate conduct and LLCD. For male pupils, lower self-perceived appropriate conduct (lower equals' poorer view) in the class context was significantly associated with higher presentation of LLCD. No relationship between appropriate conduct and LLCD for the female pupils was found in the present study. This result adds support to the pattern of gender development as proposed by Bronfenbrenner (Darling, 2007). This pattern infers that primarily a significant relationship will be found between male individuals and maladaptive behaviours, due to disparities in the underlying mechanism of self-regulation. This will present as behaviours similar to those representing LLCD. Adding to this, the social norms of the stereotypical views of gender and behaviour will be instilled in individuals leading to males being more likely to report their maladaptive behaviour than females. The result shows that even though the male pupils had a low self-perception of their own behaviour it did not curb their presentation of LLCD.

Additionally, and contrary to predicted the force characteristic of resistance to peer pressure (H3) were not significantly associated with LLCD. Also contrary to predictions, no significant associations were found between the home context micro-variables of weekly sleep (H19), or parenting practices (H5), and LLCD in the school context. The home context variables of home chaos (H4), television in bedroom (H6) and extra-curricular activity (H11)

were primarily found to be associated with higher levels of LLCD in the school context. However, once placed in the holistic model with other variables the significance relationships between television in bedroom and LLCD, home chaos and LLCD, and extra-curricular activity and LLCD were lost. Further to this, the investigating mediator of global self-worth was found to be positively correlated with LLCD. However, the significance of this relationship did not hold once placed in the holistic model of influence with additional variables.

An exosystem model (interactions between processes occurring between two micro and mesosytems, with the pupil present in only one system) could not be inferred for the amount of screen time used by parents and the pupils' LLCD. No significant relationship was found between the distal process of parents' screen time use and the pupils' presentation of LLCD. Lastly, LLCD was found to be independent of socioeconomic status. See Table 9 for a full account of the hypotheses.

Table 9

T1 Hypotheses and Outcome

HT	Description	Result
H1	Males present significantly higher LLCD than females	Supported
H2	Higher proneness to boredom = higher LLCD.	Supported
H3	Resistance to peer pressure will be negatively associated with LLCD	Not Supported
H4	Higher chaos = higher LLCD	Not Supported
H5	Lower parenting practices = higher LLCD	Not Supported
H6	Television in the bedroom = higher LLCD	Not Supported
H7	Higher amounts of screen time = higher LLCD	Supported
H8	Higher screen time = to higher LLCD mediated by higher proneness to boredom	Supported
H9	lower amounts of sleep = higher LLCD	Not Supported
H10	Higher screen time = lower sleep leading to higher LLCD	Not Supported
H11	Lower extra-curricular activity = higher LLCD, mediated by socioeconomic status, parenting practices and screen time	Not Supported
H12	Higher parent's screen time = higher LLCD	Not Supported
H13	Higher parent's screen time = higher LLCD mediated by the pupil's screen time.	Not Supported

Chapter 6: Repeated Measures Study

This chapter reports on the quantitative data collected at time point 2 (T2). The data was collected via a battery of questionnaires to provide a longitudinal inspection of the bio-ecological processes that may influence LLCD in a sample of Key Stage Two children (N=249, 9-11years). Furthermore, data was collected from the parent/guardian sub-sample (N=34). This chapter is set out in three sections. Firstly, preliminary analysis is presented, including cleaning and screening of the data, attrition analyses and descriptive data reports. Second, the inferential results will be presented consisting of bivariate correlations and multiple regressions model. Third the bringing together of data from T1 and T2 will be carried out in order to satisfy the 'time' element of the PPCT model (Bronfenbrenner, 1995) and to address the repeated measures research question.

Preliminary Analysis

This section of preliminary analyses reports on the characteristics of the main sample and sub-sample and presents descriptive statistics for all the variables at T2, followed by details of the data preparation, including: investigations of missing values, and normality of distribution. Next the results from the attrition analyses are displayed, and lastly, this is followed by the plan of analyses.

Sample characteristics.

Table 10 presents the characteristics of the sample and the sub-sample for T2

Table 10
Sample Characteristics T2

	Sample		Sub-sample	
	No	%	No	%
Gender				
Male	118	47	15	44
Female	131	53	19	56
Total	249	100	34	100
Age				
9 Years	28	11	3	9
10 Years	110	45	13	38
11 Years	109	43	18	53
Missing	2	1	-	-
Total	249	100	34	100
School				
G	61	25	6	9
L	93	37	13	38
M	95	38	15	53
Total	249	100	34	100
Year group				
Year 5	117	47	14	41
Year 6	132	53	20	59
Total	249	100	34	100
TV in bedroom				
Yes	181	73	26	77
No	63	25	8	23
Missing	5	2	-	-
Total	249	100	34	100

Descriptive statistics.

Table 11 presents the descriptive Statistics for all the variables at T2.

Table 11

Sample Descriptive Statistics for all Variables T2

Variable	*N*	Min	Max	*M*	*SD*	95% CIs	
						Lower	Upper
Low-level disruption	248	8	24	13.02	3.28	12.61	13.43
Proneness to boredom	240	8	38	19.33	5.99	18.56	20.09
Global self-worth	215	10	27	21.88	3.35	21.43	22.33
Appropriate conduct	212	11	27	21.03	3.37	20.58	21.49
Extra-curricular activity	230	0	38	7.92	5.77	7.18	8.67
Sleep (Hours)	238	35	94	69.31	8.76	68.19	70.43
Screen time (Hours)	249	2	70	28.73	14.73	26.90	30.57
Home chaos	249	6	17	11.03	2.29	10.73	11.33
Parent screen time (Hours)	34	2	35	16.94	8.26	14.13	20.05
Parenting practices	32	28	45	39.41	3.65	38.03	40.75
Socioeconomic status	34	6	24	15.91	4.59	14.07	17.24

Notes. CI = Confidence Intervals. No data was collected for executive function and resistance to peer pressure at T2

Preparation of the data set

The data sets were input onto the computer software programme SPSS for windows version 23.0 (SPSS Inc, 2016).

Missing values.

In studies with more than one time point it is not unusual for participation rates to drop between data collections. Due to the year lapse between T1 and T2, drop out of participants did occur resulting in missing data from all variables at T2. The missing data was seen as not occurring due to selective attrition, whereby participants drop out of the study in a predictable way. The pattern of missingness was declared as MCAR due to it mostly being related to children no longer being at the school and the data sets that were collected were deemed as a random sample of the population. Only complete data sets with contributing data from T1 and T2 were used for data analysis T2 (N=249).

Attrition analysis.

Of the 277 pupils that completed T1 data collection, 249 also completed data collection at T2. Attrition analysis was carried out on all the variables to test whether the 28 pupils who did not complete T2 data collection differed from those who completed both T1 and T2 data collection. Chi-square tests showed that the pupils who did not complete T2 did not differ from those who completed T1 and T2 stages of data collection on: gender, $\chi^2(1)=.11$, $p=.74$, phi= -.03 or Television in bedroom, $\chi^2(1)=3.46$, $p=.06$, phi=,12. Independent sample t-tests showed that the pupils who completed T1 did not differ from those who completed T1 and T2 stages of data collection on the following: low-level classroom disruption, $t(249) = -.18$, $p=.85$, CI: -1.44 to 1.19 (eta squared=.000); proneness to boredom, $t(249) = -.04$, $p= -.97$, CI: -2.28 to 2.18 (eta squared .000); weekly screen time hours, $t(249) =.78$, $p=.43$, CI: -3.76 to 8.73 (eta squared=.000); extra-curricular activities,

t(221)=.37, *p*=.71, CI: -1.86 to 2.72 (eta squared=.000); finally, weekly sleep hours, *t*(249)=.38, *p*=.70, CI: -1.56 to .85 (eta squared=.001). In summary, the results across all variables indicate no selection bias for the participants who remained from T1 to T2.

Normality of distribution.

Data cleaning and screening was carried out to assess the normality of distribution for all variables using both statistical and graphical information. Statistical assumptions were met for all variables and are recorded in Table 12. Visual histograms also supported this, suggesting observed values were similar to the expected normal distribution.

Table 12

Normality Statistics T2

Variable	*M*	5% *M**	Skew	Kurtosis	Kolm-Sm[a]
Low-level classroom disruption	13.02	12.84	.80	.19	.00
Proneness to boredom	19.33	19.19	.43	-.07	.00
Extra-curricular activity	7.92	7.50	1.59	2.88	.00
Sleep	69.31	69.63	-.63	1.63	.00
Screen time	28.73	28.05	.60	-.08	.00
Global self-worth	21.88	22.11	-1.00	1.33	.00
Appropriate conduct	21.03	21.43	-.69	-.19	.00
Home chaos	11.03	10.97	..37	-.22	.00
Parent screen time**	16.84	16.91	.36	-.75	.20
Parenting quality**	39.41	39.63	1.14	1.59	.01
Socioeconomic status **	15.91	15.78	.53	-.39	.02

Note. * 5% Trimmed mean **=Sub-sample [a] = Kolmogorov-Smirnov

Plan of Analyses

Data analysis followed the same procedure for T1 in the first instance and observed relationships between the predictor variables and LLCD. First, Pearson's bivariate correlation coefficients were used to understand the primary relationships between LLCD and the predictor variables at T2. A multiple regression model followed, to examine how well the informed set of variables was able to predict LLCD, also how much unique variance in LLCD each independent variable explained with reference to T1. As the present study looks to pioneer bioecological LLCD research it is imperative that early investigations extend the unidirectional results independently observed at T1 and T2, and include analysis over time.

The repeated measures analysis incorporates the *time* dimension of Bronfenbrenner PPTCM (Bronfenbrenner, 1995) to address the following research question: What is the stability or change of low-level disruption in the classroom over time? Repeated measures cross-lagged research models will provide robust evidence of directional interrelationships. Cross–lagged analysis determines which direction the influence is strongest (Tyagi & Singh, 2014). For example, with two variable named X and Y six correlations will be calculated: two auto-correlations (r_{X1X2}, $r_{Y1Y2)}$, two synchronous correlations (r_{X1Y1}, r_{X2Y2}), and two cross-lagged correlations (r_{X1Y2}, r_{X2Y1}). From these correlations one of four possible conclusions can be determined.

1. If variable *X* at T1 affects the results of variable *Y* at T2
2. If variable *Y* at T1 affects the results of variable *X* at T2
3. *X* may cause *Y* or vice versa, they may influence each other
4. The relationship between *X* and *Y* may be influenced by a third variable.

Bivariate Correlations

Pearson's correlation coefficients were calculated to survey the associations of the proximal and distal predictor variables with LLCD for T2 (Tables 24). Once again (as done at T1), all scatterplots were checked to limit the issues of Type II error and were found to be satisfactory. The following summaries of the bivariate correlations will be structured in keeping with the *context* facet of the PPCTM (Bronfenbrenner, 1995) framework starting with the individual person factors.

Individual person factors.

As with associations at T1 several correlations were found to be significant in the predicted direction at T2. Proneness to boredom was positively associated with the presentation of LLCD (r=.31); indicating that higher levels of proneness to boredom were associated with higher levels of LLCD. In addition, a negative correlation was found between appropriate conduct and LLCD (r=-.69); indicating a lower perceived perception of appropriate conduct was related to a higher level of LLCD. The significance of this relationship was found to be stronger at T2 than at T1 (r=-.43). As was found at T1, a negative association were found between global self-worth and LLCD (r=-.26), indicating that lower global self-worth was associated with higher LLCD. A gender effect continued to be found for this sample, with male pupils displaying significantly higher LLCD than their female peers (r=-.40).

Microsystem.

There was evidence that proximal processes within the home microsystem were related to processes within the school microsystem. Home chaos and LLCD were positively correlated (r=.19); higher levels of chaos in the home context were associated with higher levels of LLCD in the school context, the same pattern found at T1. Furthermore, a significant positive relationship between the pupils' screen time and LLCD, was found

(*r*=.30); higher levels of reported screen time were associated with higher levels of LLCD, reflecting the significant correlation found at T1.

However, unlike at T1, at T2 sleep was found to be significantly correlated with LLCD (*r*=-.24); indicating that a lower amount of sleep was associated with higher levels of LLCD being presented in class. Additionally, unlike at T1, having a television in the bedroom was found to be no longer significantly associated with LLCD. In line with the findings at T1 some proximal processes were not found to be significant to LLCD for the present study sample. Neither extra-curricular activity nor parenting practices (positive parenting, inconsistent discipline and poor supervision) were significantly related to LLCD at the second time point.

Exosystem.

Reflecting the result from T1, no statistically significant relationship was found between the distal process of parents' weekly screen time and pupils' presentation of LLCD. Furthermore, no significant relationship was found between socioeconomic status and LLCD, at T2, as was the case at T1.

Table 13

Pearson Correlation Coefficients

Variable *N*	2 249	3 249	4 249	5 249	6 249	7 249	8 249	9 249	10 249	11 34	12 34	13 34
1 Low-level disruption	**-.40****	**.31****	**-.26****	**-.69****	-.11	-.03	**-.24****	**.30****	**.19****	.15	-.33	.05
2 Gender	1	-.11	.14*	.30**	.06	-.03	.21**	-.10	-.16*	.17	.24	-.08
3 Proneness to boredom		1	-47**	-.35**	-.05	-.17*	-.03	.13	.27**	.13	.11	.06
4 Global Self-worth			1	.34**	-.04	-.02	.13	-.04	-.24**	-.17	-.17	.18
5 Appropriate conduct				1	.16*	.40	.18*	-.25**	-.27**	-.33	.38	.34
6 Television in bedroom					1	.04	.06	-.06	-.15*	-.02	.20	.42*
7 Extra-curricular activity						1	-.08	-.02	.00	-.30	-.34	-.01
8 Sleep							1	-.26**	-.14*	-.01	.33	.18
9 Screen time								1	.15*	.09	.14	.13
10 Home chaos									1	-.28	-.18	-.07
11 Parent screen time										1	.35	-.13
12 Parenting practices											1	-.13
13 Socioeconomic status												1

Note: * p<0.05. **p<0.01 (2 tailed) Sub-sample 11, 12, 13 (*N*=34). Resistance to peer pressure and executive function were not measured at T2. Gender coded-1=Male, 2=Female. TV in bedroom coded-1=Yes, 2=No

Multiple Regressions

Informed by the initial bivariate relationships, multiple linear regressions were calculated to test the interrelationships of the previously correlated set of variables which significantly predicted participants' presentation of LLCD. The significant variables included are almost identical to those placed in the multiple regression models at T1, with the addition of sleep. For T2, the following significant predictors were simultaneously regressed onto the outcome of LLCD: gender, proneness to boredom, global self-worth, and appropriate conduct, screen time, sleep and home chaos.

Additional research questions.

By using this method, a more holistic picture of LLCD can be developed, taking into account the overlapping effects between the independent variables. Additional research questions were posed:

1. How well does this set of variables (gender, proneness to boredom, global self-worth, appropriate conduct, home chaos, screen time and sleep) predict the outcome of LLCD?
2. Which variables best predict LLCD accounting for any shared variance?

Preliminary analyses

Preliminary analyses were carried out to satisfy the additional assumptions associated with linear regression. The sample size of 249 was deemed adequate in fitting with the criterion equation: $N > 50 + 8m$ (m=number of IVs) as recommended by Tabachnick and Fidell's (2001). Singularity checks revealed all bivariate correlations of independent variables were below the recommended .7 (Pallent, 2010), therefore all variables were retained (Appendix 7). This was further supported by the collinearity statistics of no tolerance value less than .10 and no variance inflation factor (VIP) values above 10, therefore the assumption

of multicollinearity were declared as met (Appendix 8). Lastly, a high Mahalanobis distance score of 36.28 exceeded the chi-square critical value of 27.59, with nine independent variables (Pallant, 2001), indicating potential of extreme univariate outliers. On further investigation only 1 case (Participant 29) exceeded this critical value, therefore it was left in the data set.

Addressing the research questions.

Research question 1 was firstly addressed: How well does this set of variables; gender, proneness to boredom, global self-worth, appropriate conduct, home chaos, screen time, and sleep predict the outcome of LLCD? The results of the regression indicated a significant regression model (F (7,196) =30.48, p<.00), with the combined variables predicting 52% of the variance in LLCD (R^2 =.52).

The individual results for each variable were examined to answer research question 2: Which variables best predict LLCD accounting for any shared variance? As was found in the T1 regression model, once the shared variance was taken into account, the person variable of self-esteem no longer had significant association with LLCD. Furthermore, home chaos and sleep were no longer significantly associated with LLCD. It was further discovered that three of the variables did continue to have significant associations with LLCD for this sample. As at T1, appropriate conduct recording the highest significant beta value (β= -.54, p<.01), then gender (β= -.20, p<.01) and lastly weekly screen time (β= .14, p<.05). However, converse to T1, at T2 proneness to boredom also lost significance to LLCD. Therefore, to address question 2, the person characteristic of appropriate conduct was the variable that explained the most variance in LCD once the shared variance of gender, proneness to boredom, global self-worth, screen time, sleep and home chaos was taken into consideration

Model summary.

The model indicated that if all the included variables are held constant a decrease by one unit on the appropriate conduct scale would increase LLCD by .52 (on the LLCD scale) (β = -.54, p<. 01). A screen time increase by one unit (i.e. one hour), would see LLCD increase by .03 on the LLCD scale (β = .14, p<. 05) (Table 14).

Table 14

Multiple Regression of Variables on LLCD T2

Variables	B	SE B	β
Gender	-1.30	.35	-.20**
Proneness to boredom	.05	.03	.08
Global self-worth	-.03	.06	-.02
Home chaos	.07	.08	-.05
Screen time	.03	.01	.14**
Sleep	-.03	.02	-.07
Appropriate conduct	-.53	.06	-.54**

Note. *p<.05, **p<.01 Gender-1=Male, 2=Female

Repeated Measures Analyses

In keeping with the view that a bioecological study of human development must allow for progressive mutual accommodation between the developing individual and the external environment, this section of T2 data collection incorporates the *time* facet of the PPCTM (Bronfenbrenner, 1995), specifically that of meso-time. This repeated measures study is required to investigate LLCD for two reasons. First, this study will highlight the developmental trajectory of LLCD over time among the Key Stage Two pupil sample, exploring the possibility that LLCD increases with age. Second, the analysis allows a test of

the direction of the relationship between key variables and LLCD to be investigated. The predictor variables identified from the previous analyses and taken forward in this section are gender, weekly screen time and behavioural conduct. For example, the current investigation will examine whether lower appropriate conduct leads to higher LLCD, or whether higher LLCD leads to lower appropriate conduct. The present study will pioneer scientific research investigating LLCD to address the T2 research question: What are the directions of influence between LLCD and the investigated variables?

Low-Level Classroom Disruption Over Time.

First, to assess the developmental trajectory of LLCD over time among the Key Stage Two pupil sample, a paired-sample t-test was conducted. There was a statistically significant increase in LLCD scores from T1 (M=12.55, SD=3.33) to T2 (M=13.01, SD=3.29), t (245) =-2.33, p<.05. The mean increase in LLCD scores was -.45 with a confidence interval ranging from -.84 to -.07. However, the eta squared statistic (.01) indicated this was a small effect size.

Cross-Lagged Analysis.

A series of hierarchical multiple regression models were carried out to analyze the reciprocal associations and directional influences between the variables over two time points. The present study aims to examine the extent to which the predetermined variables predict pupils' LLCD, and also to what extent LLCD would predict the predetermined variables. Due to the exploratory aspect of the present study, no predictions of influence were made prior to carrying out the analysis. Furthermore, crossed-lagged techniques control variables at the previous time point, enabling directional inferences to be made. The investigated variables were determined by the previous multiple regressions, namely: screen time and appropriate conduct. The sample was separated in to two groups by gender. Standardized regression coefficients were reported and 95% confidence intervals generated with SPSS. Pairwise

deletion was used to deal with missing data. With reference to the key variables the T2 research question was divided in to two further questions.

1. Over time, how does the proximal factor of screen time interact with LLCD differently for male and female pupils?
2. Over time, how does the person variable of appropriate conduct interact with LLCD differently for male and female pupils?

Screen time with LLCD

Figure 9 shows the results addressing repeated measures research question 1: Over time, how does the proximal factor of screen time interact with LLCD differently for male and female pupils? A novel finding was found for the male pupils. Screen time at T1 was not found to be a significant predictor of LLCD at T2 (β=.058[95% CI, -.020 to .048]), after controlling for LLCD T1. However, LLCD at T1 was a significant predictor of screen time at T2 (β=.021[95% CI, .004 to .094]), controlling for screen time at T1. This finding indicates that higher LLCD significantly predicts higher screen time for the male pupils in this sample. Even though for the female pupils' screen time and LLCD were significantly related at both synchronous time points the results for the cross-lagged analysis produced no significant results. Screen time at T1 was not found to be a significant predictor of LLCD at T2 (β=.072[95% CI, -.016 to .039]), after controlling for LLCD T1. Furthermore, LLCD at T1 was not a significant predictor of screen time at T2 (β=.08[95% CI, -.020 to .054]), controlling for screen time at T1. It can be concluded that screen time and LLCD do not have a significant influence on each other over time for the female pupils in the present study.

Screen Time

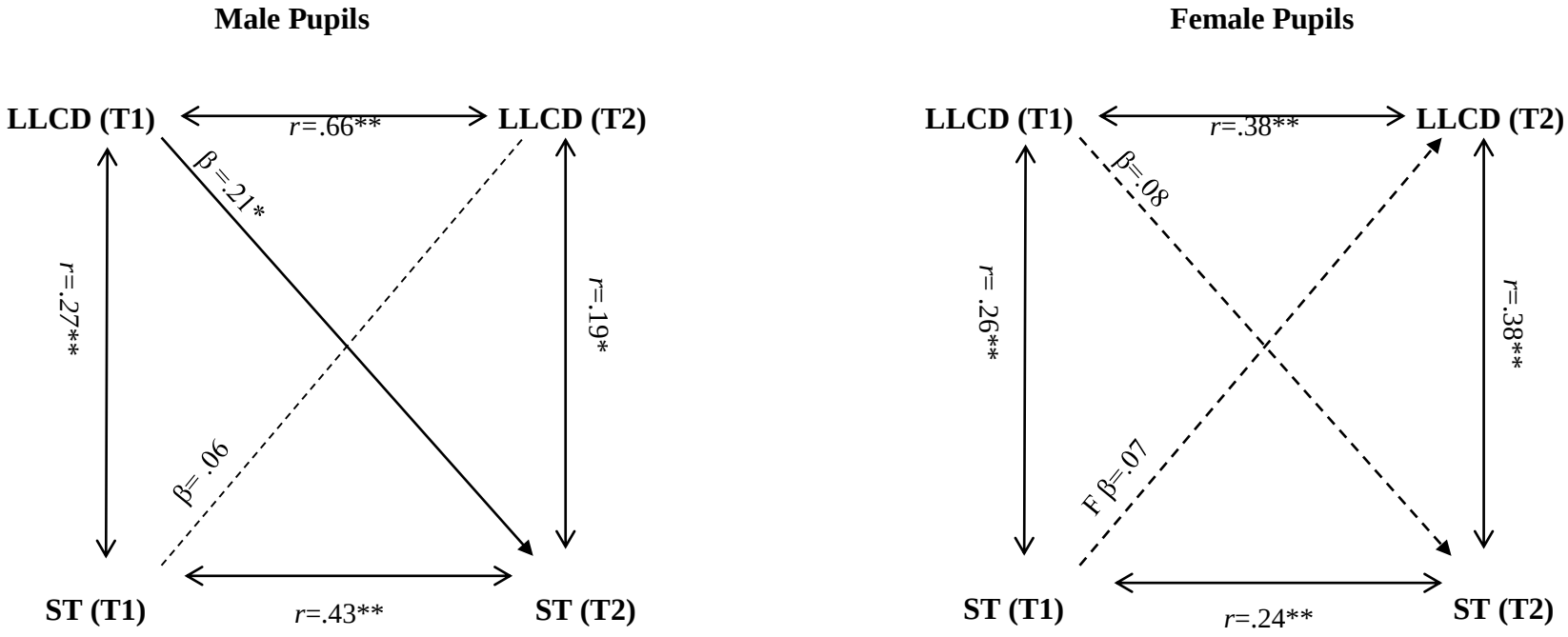

*Figure 9.*Cross lagged analysis showing LLCD and screen time for male pupil and female pupil sub-samples across T1 and T2. Note: LLCD=low-level classroom disruption, ST=screen time. A dashed line indicates a non-significant relationship.

Appropriate conduct with LLCD

Figure 10 shows the results addressing the repeated measures research question 2: Over time how does the person variable of appropriate conduct interact with LLCD differently for the male pupils and the female pupil? Results for the female pupils show appropriate conduct at T1 was a significant predictor of LLCD at T2 (β=-.16[95% CI, -.277 to .000]) after controlling for LLCD at T1. While, LLCD at T1 was not a significant predictor of appropriate conduct at T2 (β=-.20[95% CI, -.431 to .001]), controlling for appropriate conduct at T1. The analysis showed a significant relationship between appropriate conduct T1 and LLCD T2 and no significant relationship between LLCD T1 and appropriate conduct T2. This indicates that higher appropriate conduct significantly predicts lower LLCD for the female pupils.

Contrary to the female pupil result the directional relationship between LLCD and appropriate conduct was found to be reversed for the male pupils in the sample. Appropriate conduct at T1was not a significant predictor of LLCD at T2 (β=-.16[95% CI, -.283 to .002]), after controlling for LLCD T1. However, LLCD at T1 was a significant predictor of appropriate conduct at T2 (β=-.26[95% CI, -.430 to -.102]), controlling for appropriate conduct at T1. The analysis showed a significant relationship between LLCD T1 and appropriate conduct T2 and no significant relationship between appropriate conduct T1 and LLCD T2. This finding indicates that higher LLCD significantly predicts lower appropriate conduct for the boys in this sample.

Appropriate conduct

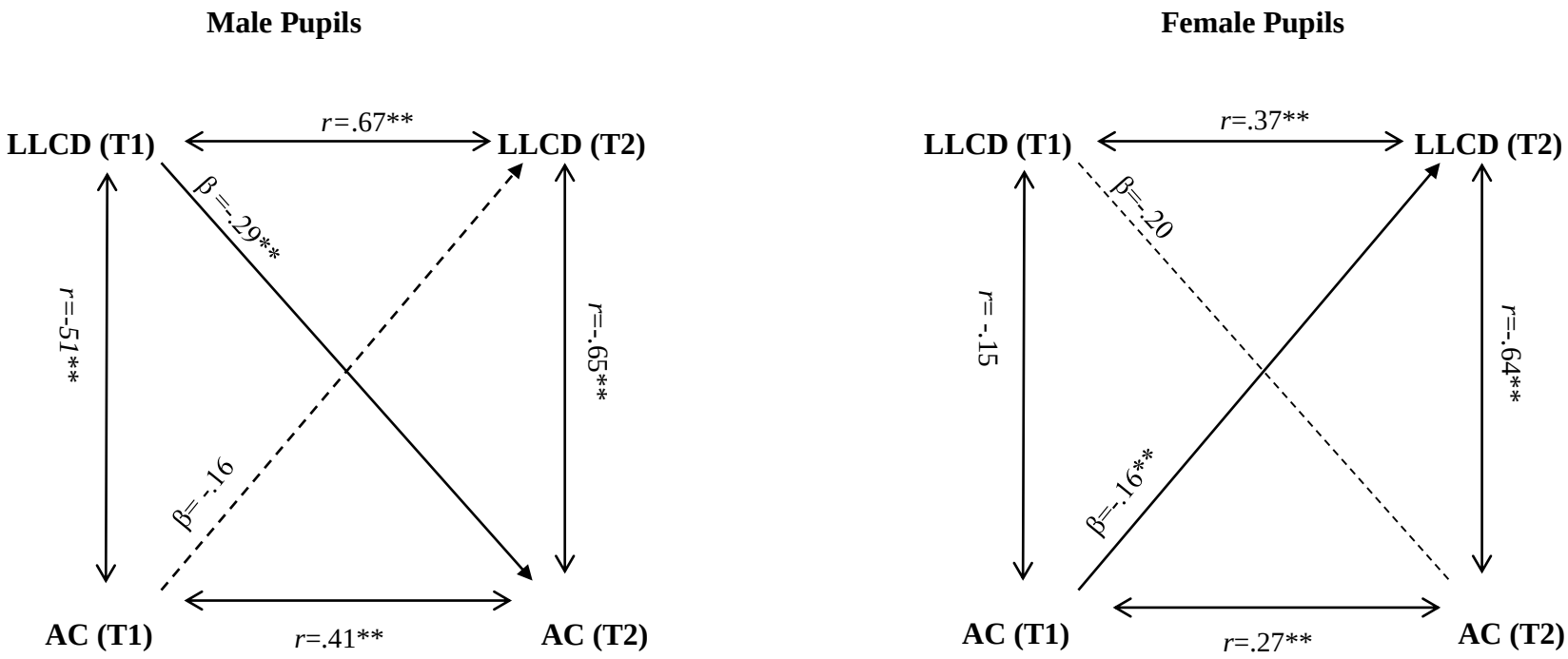

Figure 10. Cross lagged correlation analysis showing LLCD and appropriate conduct for male pupil and female pupil sub-samples across T1 and T2. Note: LLCD=low-level classroom disruption, AC=appropriate conduct. A dashed line indicates a non-significant relationship.

Summary

A series of analyses addressed the T2 repeated measures research question: What are the directions of influence between LLCD and the investigated variables? First, repeating the analyses at T1 bivariate correlations between predictor variables and LLCD. These revealed broadly similar patterns to correlations at T1 with LLCD significantly correlated with gender, proneness to boredom, global self-worth, and appropriate conduct, screen time and home chaos. In addition, at T2, sleep was now also found to be associated with LLCD. Additionally, in contrast to T1; TV in bedroom was no longer significant at T2. Once all the significant variables were included in a multiple regression model all but gender, screen time and appropriate conduct lost significance. Conversely to T1, the significance of proneness to boredom was also lost during T2 multiple regressions.

Due to the constant gender influence that was found these key variables were then investigated via crossed-lagged analysis separately for the male and the female pupils, with some novel findings. The female pupils' use of screen time was significantly the same at both time points. Also their presentation of LLCD was significant at both time points. Encouragingly, for the female pupils the results suggested there is no directional influence between the amount of screen time use in the home context on the presentation of LLCD in the school context (or vice versa). However, a novel result for the male pupils was found. Higher LLCD was found to be a significant indicator of higher use of screen time use for the male pupils.

Interestingly, another gender difference was found for the result between appropriate conduct and LLCD. For the female pupils, higher self-perception of their appropriate conduct suggested lower presentation of LLCD, indicating that behaviour, specifically LLCD was being maintained by the cognitive thought processes of the female pupils. For the male pupils

the relationship between appropriate behaviour and LLCD was found to be the opposite direction of influence. For the male pupils, higher LLCD influenced lower self-perception of their appropriate conduct, indicating that it was their actual behaviour that dictated their perception of their appropriate behaviour in the class.

Chapter 7: Qualitative Findings

This chapter reports on the qualitative data collected to address the following research question: Using qualitative teacher interviews, what is the impact of low-level disruption in the classroom? The qualitative data was collected via semi-structured interviews with a cohort of teaching staff (*N*=8) *to provide a contemporary real life view of LLCD from the perspective of teachers (Creswell & Clark, 2007). The first section will report on the plan for analyses. The second section reports on the qualitative data with extracted themes and sub-themes, including a summary of each. The final section presents the overall summary of the qualitative data.*

Plan of Analyses

The present study acknowledges that other effective types of qualitative data analyses exist, but that it is also essential to match the requirements of the research question with the type of analysis chosen. Therefore, thematic analysis (Braun & Clarke, 2006) was chosen to analyse the data gathered from the teacher interviews. This was deemed an appropriate technique to match the requirements of this part of the present mixed-methods research. Firstly, thematic analysis is seen as a flexible framework and is free from control by any particular theoretical or epistemological positon (Braun & Clarke, 2006). This flexibility is in keeping with the pragmatic paradigm guiding the qualitative research question. It can be realist in nature, appropriate for addressing the significance of LLCD in relation to the teachers' personal reality and experiences. It can also be constructionist, examining LLCD in the broader societal context, adding triangulation to the quantitative data results found.

The qualitative data collection was both exploratory and explanatory in nature. Explanations will be sorted via the theoretically themes. These themes will be inductively sorted form the data giving detailed accounts of different aspects of LLCD as led by the

Ofsted questions (2014) specific to the LLCD YouGov survey (see Chapter 4: The Research Methodology, for full list of Ofsted questions). Additionally, an inductive approach will be applied to identify themes in the data that are not driven by the researchers' theoretical interest or preconceptions but are still obvious as semantic themes. In this pioneering stage of LLCD investigations, it was deemed advantageous to the research process to identify semantic themes only. Semantic themes are identified as explicit with no underlying meaning to what the participant has stated (Braun & Clarke, 2006).

Themes will be defined in keeping with Braun and Clarke (2006), who posit that a theme can be defined as encompassing coherent information, relative to a particular research question and the prevalence of such spread across each single data item and across the entire data set. Consideration was given to the researcher's judgement of prevalence in relation to numeric occurrences and/or prevalence in relation to the importance of a theme to the topic. Due to the small sample for the present study the researcher inferred the later prevalence of themes and the importance of the theme took precedence over the numerical occurrences of such within the data. Finally, as advised by Braun and Clarke (2006) the six phases of thematic analysis will be followed, namely: familiarity with the data, generation of initial codes, searching for themes, reviewing themes, and defining and naming themes and producing the report

Data Analysis

Individual semi-structured interviews were carried out with a cohort of teaching staff (*N*=8). The teaching sample consisted of participants from the participating schools (*n*=3) and the researcher's existing educational contacts (*n*=5). The eight interviewees (7 females and 1 male) were all members of the teaching profession and at the time of interview were employed within the primary level of education, specifically: five as teachers, three as teaching assistants and one as a student teacher. Thematic analysis was used to identify

themes denoting the impact and significance of LLCD in the classroom. For the present study, the themes related to the topics of each of the six Ofsted questions (2014). The data was coded to identify specific references to themes of experiences given by the teaching staff. These codes were then organised into broader themes. Extracts from the interviews are presented that address each of the Ofsted (2014) questions in turn.

1. How often does low-level disruption take place?

Ofsted (2014) stated that low-level classroom disruption is part of the everyday life in the classrooms; prevalence of LLCD was enough for pupils to be losing up to an hour a day of learning time. The findings from the current study support this, with all eight teachers reporting the occurrence of LLCD using words such as “constant”, “common” and “always”. Furthermore, Teacher 2 reported LLCD as part of “every lesson”.

When probed deeper, the teachers surveyed for the Ofsted report (2014) gave the reason for the high prevalence of LLCD revolving around the pupils. One primary teacher stated that LLCD occurred because the “pupils are not prepared to listen unless they were entertained” (p.9). While other primary teachers cited the pupils’ social skills as the issue, stating that:

> Sometimes it’s a question of manners. In my experience students are rarely being deliberately rude, but lack awareness that interrupting is inappropriate. Also, these students would shout across their parents if they were having a conversation with someone else

Another added that “children wanting to answer questions/being over enthusiastic/not understanding they shouldn't be calling out”. Overall, the teaching staff from the present study gave similar perceptions when asked about the prevalence of LLCD at their schools. From the conversations, two sub-themes emerged, named as pupil boredom and social norms.

1.1.Boredom.

Some of the present study interviewees inferred that the pupils' boredom influenced consequential LLCD. Possible reasons for this were provided, such as the skills of the teacher. Teacher 6 added "Well a lot of the time those things [LLCD] happen because the lessons aren't really engaging the kids particularly well". This view was supported by teaching assistant (P8) who described this, stating that "it's dependent on the lesson, if they [the students] like the lesson". However, some of the findings cited the pupil as personally responsible for their level of boredom (see Table 15 for examples).

Table 15

Sub-theme: Boredom

Quote
Teacher 6: *"Like I said if you were to eradicate all low-level behaviour, you would have to have an interactive lesson that's absolutely bang on sparkling and change it every ten minutes and by the end of the day, you'd be dead and the kids would be physically exhausted because it's impossible to do"*
Teacher 7: *"We use to do a 20 to 25 minutes carpet session and we tried to make it as interactive as possible ... It was too long, so this time…. we have stopped a lot of that sitting around for too long"*
Teacher 6: *"That sort of thing (LLCD) will be great for 15 minutes and then it will get boring for them and then they'll be off again. So I think kids behaviours are changing even in this short space of time"*

1.2 Social norms.

The second sub-theme that emerged from the current research data in relation to the prevalence of LLCD was connected to the pupils' social norms in school. Teachers asked in the Ofsted (2014) survey perceived that some pupils who presented LLCD seem to lack

knowledge of what would be regarded by themselves as normative behaviour, with one teacher saying that "in my experience students are rarely being deliberately rude, but lack awareness that interrupting is inappropriate" (p.9). Teachers from the present study expressed similar observations that pupils were unaware of their low-level behaviour, as if it was an unconscious act and a learnt behaviour (Bandura, 1986). Teacher 2 perceived the pupils' thought process involved with restraining from carrying out LLCD "it is frustrating because you think actually, you're capable so why aren't you, you're choosing not to. And that's not the case in some of them, some of them can't choose, they don't choose to misbehave". Another teacher described this in detail, shown in Table 16.

Table 16

Sub-theme: Social Norms

Quote
Teacher 4: "*But the little tapping noises I think may affect the people closet but when you say 'can you stop tapping? And it normally stops. They usually don't realise, it's just something that they do"* "*Yeah, I don't think they realise it's a distraction, I think for them it's just an urge and a thing that they need to do. I don't think they realise it can be a distraction for other people* **R:** *You think it's a spontaneous thing?* **Teacher 4:** *Yeah I don't think its malicious thing like 'I'm going to interrupt you; I'm going to be rude'. It's just a natural thing they do, I don't think that would change if you had 3 adults in the room, it would still happen"*

Note: R=researcher

2. Does low-level disruption affect learning negatively?

Ofsted (2014) reported that teachers had very differing views of how LLCD affected learning. When Ofsted asked what impact LLCD has on learning, 22 % of primary teachers stated high impact, 40% medium impact and 36% low impact. However, Ofsted calculated that one in 20 teachers reported a loss of over ten minutes per hour of teaching due to LLCD. Concluding that if generalised, this level of disruption would mean that, on average, nearly every primary school has a teacher struggling to maintain an orderly working environment. "As children at primary level tend to have one teacher for the majority of the school day, this represents a considerable amount of learning time lost for the pupils in that particular class" (Ofsted, 2014, p.12). This view was supported by all eight of the teaching staff interviewed for the present study, acknowledging LLCD has a negative impact on the learning that takes place in their classrooms. Three sub-themes emerged from the interviews: 1) the teacher's distraction, 2) the pupil's distraction and 3) a snowball effect in the class.

2.1 ***Distraction for teacher***.

Similar to Ofsted (2014) the present study found teachers' perceptions of the negative effect of LLCD to learning was mixed. Two of the teachers, one being male (T6) and one being female (T2) reported how LLCD can make it possible to "lose your train of thought" (Teacher 6 and Teacher 2). Teacher 6 further suggested, "I'm just thinking there's nothing wrong with low level behaviour because actually what Ofsted see as low level behaviour isn't really an issue, it's just the way the brain zones in and out of things". However, some of the other teachers expressed stronger concerns regarding the distraction to their teaching. One teacher reported that she "couldn't teach, it was like crowd control. It felt like babysitting 30, 11 year olds" (Teacher 4). See Table 17 for examples.

Table 17

Sub-theme: Distraction for the Teacher

Quote
Teacher 5: *"You'd have an hours lesson and 10 or 15 minutes would be learning and the rest would be me counting down, trying to get them to be quiet"*
Teacher 4: *"I think the calling out, the talking, the distracting……can be detrimental to the actual work that gets produced because by the time it's the end of the input, you're learning time that they're doing in their books ends up shorter because then you're trying to fit in with something"*

2.2 Distraction for Pupils.

The teaching staff in the present study also highlighted the distraction of LLCD on the pupils. Teacher 2 stated that LLCD, "upsets the children that do want to learn and do listen". Similar was reported by a teaching assistant (T3) that while "I have to focus on that (LLCD)…it impacts on the other kids". Other teachers elaborated on these distractions by trying to understand the pupils' cognitive process (see Table 18).

Table 18

Sub-theme: Distraction for the Pupil

Quote
Teacher 2: "*I think some of the children, they don't like the noise and they find it hard to concentrate with the noise, so if there's always something going on in the background then it interrupts their thinking"*
Teacher 4: "*…if you can nip it in the bud quickly …if you can get that under control quite quickly then you can generally catch up. It's then being aware that some children have missed that input"*

2.3. Snow-ball effect.

Six of the eight interviewees from the current study spoke of the cumulative effect of LLCD. Two of the teaching assistants stated that "more, more children start doing it, once they've seen one doing it" (T1) and "I think it's more children rather than just the odd one…I think it is also a chain reaction, there are some children doing things they shouldn't it tends to start another pocket off somewhere else" (T8). Other teaching staff accounts went on to emphasise the effect this had on the learning taking place in the class (see Table 19).

Table 19

Sub-theme: Snow-Ball Effect

Quote
Teaching assistant 1: *"It* (LLCD) *also upsets the children that that do want to learn and do listen, um because then they've got the 'I don't care attitude', 'if you're not going to listen to me, I'm not going to do it', so it affects them as well"*
Teacher 2: *"It disrupts the teacher's train of thought, it disrupts the children's train of thought, it also disrupts the children's behaviour as well*"

3. Can teachers cope with low-level disruption?

When asked this question for the Ofsted (2014) survey, the teachers generally reported they were confident in the management of LLCD. Further to this, a third of these teachers accepted LLCD as part of teaching. Most of the teachers from the present study were in agreement with this, offering their perception that LLCD was "part of the job" and the "bread and butter as a teacher" (Teacher 6). An issue not raised by Ofsted (2014), but that was reported by the teaching staff in the present study, was the negative effect of coping with

LLCD and two sub-themes emerged from the data: 1) the professional impact and 2) the interpersonal impact of LLCD on the teachers.

3.1. Professional impact.

Teaching staff from the present study associated workload stress with LLCD. Teaching assistant 1 stated that for her it was:

> tiring; it really is tiring; it just drains you when it's just constantly going on. But it is draining because we've got targets to reach, we've got work to complete, you know, we've got deadlines and you don't meet them because you're just constantly managing this behaviour and until you manage the behaviour you're not going to get the work done.

While some teaching assistants added, feelings of self-doubt in their professional ability (see Table 20 for further examples).

Table 20

Sub-theme: Professional Impact

Quote
Teaching assistant 1: *"I go through a lot of torture really through the year, of failing and not coping and frustrated, erm, you know, you go through all of that, throughout the year".*
Teaching assistant 3: *"I know we are only talking low level but that used to escalate for you know children into more and you'd go home and you'd pick and pick and pick at what went wrong and sort of 'should I have done this? Should I have done that? Should have done this better, should have done that better'...draining, it can be really draining".*

3.2. Interpersonal impact.

Further to the feeling of professional impact, the teachers from the present study expressed negative interpersonal feelings towards dealing specifically with LLCD. Teacher 6 stated that

> You do have kids that who try and push you with low level stuff and wait for a reaction but general stuff. It's annoying, it annoys the hell out of me if someone not listening to me, it really winds me up but that's a real failing of mine.

Furthermore, more teachers added that LLCD compromised their position as a teacher; expressing thoughts of leaving the profession (see Table 21 for more examples).

Table 21

Sub-theme: Interpersonal Impact

Quote
Teacher 2: *"It's quite stressful, actually at the beginning of the year and the middle of the year my husband has often said 'you don't have to be there if it is stressing you that much', but it's not stressing me that much, you just go home and you want to talk about it to somebody to get it off your chest. It can be quite stressful, and draining and tiring"*.
Teacher 5: *"It was horrendous, like it almost broke me you know. It only two days a week and I totally lost all my confidence and I've been a good teacher throughout the years and all of a sudden, within 5 weeks of two day with this class, I thought I can't do this anymore, I've lost my touch"*.

4. Do school behaviour policies make a difference?

This question generated a lot of discussion both from the teachers in the Ofsted survey (2014) and from the teaching staff in the present study. The Ofsted survey (2014) reported

80% of the teachers surveyed used the school behaviour policy to tackle LLCD. Support for this was found for the present study, with all the interviewees indicating that they used the school behaviour policy to tackle LLCD. Additionally, the teachers surveyed by Ofsted (2014) also raised concerns that the inconsistent use of behaviour policies was partly influencing the presentation of LLCD. Reasons given for this inconsistency were gathered by Ofsted (2014); whereby, a fifth of the teachers expressed how they sometimes ignored LLCD and just carried on teaching while it was going on.

Moreover, other teachers cited senior staff as a contributing factor to increased LLCD; reporting that senior staffs were not tackling other staff members who inconsistently applied the behaviour policy, or that senior staff were simple unaware of the disruption LLCD caused at classroom level. Both of the views of ignoring LLCD and senior staff dealing with LLCD were reflected in the discussions from the present study. Teacher 7 reported that a star based reward was used, but that due to "inconsistent effectiveness its use was being reviewed for the following academic year".

A further sub-theme, not mentioned by the teachers surveyed by Ofsted (2014) emerged from the present study interviews; the present study teachers talked about how staffing inconsistency affected levels of LLCD. Three sub-themes: 1) inconsistent staffing, 2) ignoring as a management strategy and 3) senior staff are presented next.

4.1. Inconsistent staffing.

Almost all the teaching staff from the present study considered inconsistencies in the staff as a direct influence on LLCD. Teacher 7 shared her experience of how LLCD was affected, stating "I find that if you've got different adults in and out who are not consistent with that behaviour [LLCD]". While a teaching assistant (T8) shared their perception of the effect of

supply teachers: “There is a lot of low-level disruption when we have supply teachers. You know it is hard for them to come into school and teach in a class they don’t know”. Others explained inconsistent staffing further, including how this lack of consistency directly affected the pupils (see Table 22 for further examples)**.**

Table 22

Sub-theme: Inconsistent Staff

Quote
Teacher 2: “*We have had a lot of supply* [teachers] *in this year”* R: “*Do you think that influences* [LLCD]?” **Teacher 2:** “*Definitely…. a lot of the children in this year don’t cope well with change…. they’re not resilient to change”* **Teaching assistant 8:** *“The behaviour has been up and down because there have been so many changes with members of staff and that’s had a huge impact”*

Note: R=researcher

4.2 Ignoring.

A fifth of all teachers surveyed for Ofsted (2014), admitted that they used ignoring as a chosen method of dealing with LLCD. Adding to the discourse of ignoring LLCD, almost half the staff in the present study prolifically mentioned this as a classroom management strategy. Teaching assistant 3 personally admitted that “When you do try and ignore it, there comes a point where you have to acknowledge it”. Similar to this Teacher 5 acknowledged that staff members using the ignoring tactic are directly adding to the inconsistence application of the behaviour policy:

> So many people I've noticed at this school just turn a blind eye [to LLCD]. You know it's going on behind you yet with certain classes it's just not worth the grief and with certain classes, you know you can pull them up on it but if every member of staff isn't doing it… there's probably 60 or 70 members of staff in this school, if one turns a blind eye because it's easier then it's [the behaviour policy] not going to be effective.

Moreover, Teacher 5 explained that often this method was used as a means of controlling personal stress levels and that ignoring LLCD did not help create effective learning environment (see Table 17 for conversation).

Table 23

Sub-theme: Ignoring

Quote
Teacher 5: "*Yeah you just have to pick your battles because you'd just kill yourself if you did everything and I guess that is why we turn a blind eye to things but that's the biggest problem…There's certain things where I think "well I knock off soon and..." you know and that's the problem. It's when you turn a blind eye to it"*
R: "*So you haven't got time to tell the little boy to stop fiddling with his pencil or swinging on his chair because individually they're quite little things*"
Teacher 5: "*That's it... if they… get on my nerves, I tend to mention it more or if it's disrupting other people's learning but sometimes you do just let it go sometimes and that's the problem you know. That's where the disruptive learning comes in"*

Note: R=Researcher

4.3 ***Senior staff.***

Another issue raised in the Ofsted (2014) report was that some teachers felt that their senior staff were unapproachable and did not appreciate the extent to which LLCD took place

in the classroom. One primary school teacher contributed their feeling to the Ofsted survey (2014) asking for head teachers to maintain a regular physical presence in the classrooms. The teaching staff in the present study primarily gave positive reviews of senior staff offering views such as "amazing" (Teaching assistant 3) and "right on the end of the phone line" (Teacher 4). However, with extended discussions the teachers concurred with the teachers in the Ofsted survey (2014), implying that the support offered by senior staff was not so positive (see Table 24 for examples),

Table 24

Sub-theme: Senior Staff

Quote
Teaching assistant 8*: "I don't think they* [senior staff] *are in the class enough to see that bit and when their presence is in class anyway it's a totally different scenario. Things change. Just their presence being there they don't see some of the smaller stuff that goes on, they are quite good at clamping down on the bigger stuff that goes on straight away, they are good at that"*
Teacher 5: "*She* [the head teacher] *just washed her hands with it. One boy just told her to 'f' off and she just said don't talk to me like that and then he started going on like oh your old, your ugly and all of this and she just walked away. I thought now if he can say that to the head teacher…what chance have I got of getting respect?*"

5. What can be done better?

The Ofsted survey (2014) asked teachers what can be done to improve the culture of learning in their schools. Over three-quarters inferred that clear expectations regularly communicated to pupils and parents, would improve the presentation of LLCD. Head teachers' responsibility to ensure staff members adhere to the school behaviour policy was

also indicated by three out of ten teachers as a way of improvement. Similarly, the teachers and the teaching assistants in the present study made suggestions regarding maintaining expectations in their schools, concentrated on head teachers and teachers in the school context (see Table 25 for examples).

Table 25

Sub-theme: Expectations

Quote
Teacher 5: *"I think a real big way of improving it is communication amongst the staff"*
Teaching assistant 1: *"I mean at the moment; we do have a lot of staff within the school, I think first of all, the staff that are in that classroom permanently need to have a good relationship, they need to know how each other works and they need to know what the expectations are from the adults… Um, and its keeping to the school rules, we have set rules that run right through school. We have the pathway that runs right through school, so everyone's working to the same goal"*

6. How involved are parents in supporting high standards of behaviour?

Ofsted (2014) stated that parents play a large part in supporting their children's good behaviour at school, by understanding and upholding the expectations of the school behaviour policy. A worrying finding from Ofsted (2014), found that almost 25% of primary school parents surveyed were not aware their children's school had a behaviour policy. Interestingly, further results reported that three-quarters of the teachers ranked school-home communication of expectations as the most important factor in maintaining adaptive classroom behaviour. Seven of the eight teaching staff from the present study concurred with the importance of this relationship. Teacher 4 expressed that their school had an "open door

policy" where parents can come and speak to the teachers anytime and Teacher 2 added that they were always "open to speak to parents".

This question was probed further in the current teacher interviews and interviewees were asked explicitly about their views on the relationships between LLCD and the home context. This question created a lot of input. Teacher 6 offered a view "that disruption is kids bringing stuff in from home". Many offered their perception of more complex bioecological antecedents of LLCD. Influences including parenting skills, home chaos and social media use were all offered as potential factors. Teaching assistant 1 suggested the influence of parenting skills "sometimes it's their home background, its, they might have nurture issues" adding that

> "its attention seeking…they're not getting the attention they want so, they trying to find some. Um, some of its social skills, so they struggle with friendships and so on and some of them just aren't engaged in learning, so they find whatever they can as a distraction".

Teacher 2 supported this view "I don't think that they've been, necessarily taught when's appropriate and when's not appropriate to shout out and call out". While another teaching assistant (T8) inferred a chaotic home "that's how they are at home and in some cases I don't think there are any rules at home as well. So when they come to school and there are rules, that throws them" adding that "Sometimes there are reasons for it [LLCD]...if they [the pupil] haven't had any breakfast they are gonna be fidgety". And Teacher 5 included reference to the content of social media use as influencing behaviour:

Social media these days I mean kids shouldn't even be on Facebook until about thirteen or something but you know a lot of things go on where they're exposed to things they shouldn't be exposed to, not anything really serious but things like a general attitude and stuff.

Interestingly 80% of the teaching staff talked about parents' personal attitudes indirectly influencing the pupils' behaviour. Both teachers and teaching assistants suggested that the parents' own experiences of school have caused a negative bias towards the schooling system (Table 26).

Table 26

Sub-theme: Parental Influence

Quote
Teaching assistant 8: "*Yeah, I mean obviously parents do have a role to play. Sometimes there are reasons for it as a parent I don't want to criticise parents as they could lead a really hard and tough life"*
Teacher 2: "*I think we are all quite open to speak to parents, sometimes they don't like what we say, sometimes they don't agree with us, which is fine, erm, there is a culture really beginning now where peoples' children can do no wrong, so if a child's been told off at school, the child will go home and they'll be up "why did you tell my child off?" In my day I wouldn't have dreamed of going home and telling my parents that id been told off at school, because I'd have been told off again, so, there's this culture of golden children I believe"*
Teacher 7: *"I think if there is no expectations at home then I find they are the children that need more reinforcement at school and because they are not getting it when they go home as well they are the ones that you need to keep on top of the most, quite a lot, a lot and have to remind them again how they are supposed to behave in school, especially after a half term or like two weeks off* "

Summary

The semi-structured interviews were used to address the qualitative research question: What is the teachers' perception of the impact low-level classroom disruption has for teachers and pupils? Firstly, it ishighlighted that all the teaching staff interviewed for the present study were found to have very similar views of the impact that LLCD has, suggesting the impact is independent of their particular teaching role in the classroom, i.e. teacher or teaching assistant. All of the staff interviewed stated that they were confident when dealing with LLCD. Further to this, all interviewees referenced the frequency of LLCD as being an ongoing issue in their classroom, which they had to deal with on a daily basis. Likewise, all the teaching staff reported on the effect of LLCD on all the parties at class level. Reference was made to the distracting effect LLCD has on the teaching staffs' ability to teach, but also on the stress and pressure that it added to their working day. The distraction to the pupils' learning was also highlighted by both teachers and teaching assistants from the present study. It was suggested that LLCD was interrupting the academic process but also causing the other pupils frustration and irritation.

Suggestions were offered as to the influences of LLCD. The theme of inconsistency was found in the data. First, inconsistency with staffing of a classroom was reported by teachers and teaching assistants alike, suggested as leading to an upset in the dynamics of the classroom. Second, others suggested that the behaviour policy was being inconsistently implemented by some staff. An example of this were given by teachers and teaching assistants that staff sometimes chose to ignore LLCD, rather than deal with it as the behaviour policy suggests. Lastly, some of the teaching staff inferred that senior staff was not dealing with the inconsistencies of application of the behaviour policy effectively or that they

did not understand the prevalence of or the negative impact that LLCD is having on the classroom.

Other themes suggested that the pupil was personally responsible for their presentation of LLCD citing that some pupils had a need to be constantly entertained. Adding to this, teachers and teaching assistants suggested that if the lesson was regarded as not entertaining enough by the pupil they may become bored, fall off task and display behaviours of LLCD. Other themes that were found in the data suggested possible outside school influences of LLCD, such as parental socialisation and attitudes, home chaos and social media use.

Some teachers perceived that some parents lacked socialisation skills; therefore, their children were attending school with maladaptive social abilities and maladaptive views of what is acceptable social behaviour in a classroom. Some teachers likened this to these pupils having their own set of social norms. Another view offered by the teaching staff was that parents' own negative attitude to education was influencing their child's attitude, resulting in a lack of respect and higher presentation of LLCD. Pupils that live in a chaotic home life were suggested by some as having a higher presentation of LLCD, compared to those that do not live in a chaotic environment. Lastly, teachers and teaching assistants alike considered modern day media use as a negative influence on pupil attitude.

In general, the interview data with the eight members of teaching staff generated qualitative themes that reflected those found in the Ofsted (2014) survey, as well as additional factors that believed to be associated with LLCD. The importance of this qualitative section of the present study investigation was supported by the data. Overall, these personal accounts by the teachers and teaching assistants in the present study have supported those given in the Ofsted report (2014): that low-level classroom disruption has a fundamental negative effect on both the teaching staff and the pupil, highlighting the

importance of the quantitative sections of the present study. The integration of the quantitative with the qualitative data will be presented in the final discussion, chapter 8.

Chapter 8: Integration Discussions, Limitations and Conclusions

The final chapter of this thesis presents an overview of the research regarding the investigated concept of low-level classroom disruption (LLCD). First, a brief summary of the theoretical background and the aims of the research are presented. Then discussions will be presented of the mixed methods integration, highlighting the key findings in regards to the four overarching research questions. This includes the delineation of the results from the investigation of the bio-ecological antecedents of LLCD and the presentation of findings highlighting the impact of LLCD on the teacher and the pupil, including future research avenues. Then the study limitations are presented. Following on are the theoretical implications, and then the practical implications of the findings. Lastly, concluding comments are made.

Theoretical Background

The present study was undertaken with a mixed methods expansion approach (Creswell, Planto Clark, Gutmann, & Hanson, 2003). This allowed the quantitative and the qualitative investigations to substantially expand the limited LLCD literature by approaching the research from two different angles. First, the quantitative results were used to support the findings of the qualitative strand, and together forge a pioneering investigation into some of the underlying antecedents of LLCD viewed across time. Second, the qualitative strand aimed to support the results from the quantitative strand, and provide a contemporary account of the lived experience of LLCD as reported by teachers and teaching assistants.

Empirical research and reports have defined LLCD as being behaviour of low intensity (Arbuckle & Little, 2004; Bennett, 2017; Estutgo-Deu & Sala-Roca, 2010; Ofsted, 2014; Wallace, 2017). However, these seemingly passive acts of disruption have consistently

been reported as having negative effects on the classroom dynamic, substantially impacting on teachers' morale and pupils' learning (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2014). This has led to a long history of governmental and educational reports recognising LLCD as the number classroom behavioural problem in primary schools across England (Bennett, 2017; Elton, 1989; Ofsted, 2014; Steer, 2014).

Importantly, these reports have included reference to a range of possible antecedents of LLCD drawn from the pupils' wider bio-ecological systems. However, and more importantly (as was described in Chapter 2), the final conclusions and recommendations from these reports contextualise LLCD solely within the school environment, with some recognition that to tackle behavioural influences from outside of the school context is out of their scope (Bennett, 2017; Elton, 1989). Consequently, educational and psychological research has consistently concentrated on LLCD as an *outcome* with little consideration for the underlying mechanisms that can influence such behaviours. This emphasis of LLCD within the classroom only has led to the wide spread use of behaviourist-based classroom management techniques which temporarily control each individual incident of low-level classroom disruption. The present study argued that by not considering the underlying antecedents of this behaviour, LLCD will continue to persist as a fundamental behavioural issue in schools across England.

Integration

In order to investigate and understand the underlying antecedents of LLCD this study adopted the Person-Process-Context-Time Model (Bronfenbrenner, 1995). This framework takes into account influences which extend beyond the immediate environment in which an individual resides, as well as incorporate relationships of influence across contexts. The

study had four overarching aims and research questions. The first aim was to explore and identify possible bioecological antecedents of LLCD in order to address research question:

1. What are the proximal and distal influences of low-level classroom disruption? The literature review presented in Chapter 2 considered the bioecological underpinning of LLCD by considering potential antecedents across contexts, including pupils' individual characteristics, as well as home and school environmental factors. This was amongst Key Stage Two pupils aged 8-11 years and a sub-sample of parent/guardians. Key findings were drawn from the quantitative data and the qualitative findings. The second and third aims were investigated via the repeated measures data and research questions: 2. What are the directions of influence between LLCD and the investigated variables, and 3. What is the stability or change of low-level disruption in the classroom over time? Key findings were summarised from the quantitative data. Lastly, the fourth aim was to present a contemporary, lived experience account of the impact that LLCD has on the classroom, addressing research question: 4. what are teachers' perceptions of the impact that LLCD has for teachers and pupils? This question is addressed by the qualitative strand of the research conducted with a sample of eight members of teaching staff. The following discussions address the four research questions with reference to future, proceeding with research questions 1 and 2.

1. **What are the proximal and distal influences of low-level classroom disruption?**

2. **What are the directions of influence between LLCD and the investigated variables?**

Gender.

The results for gender present major implications for the LLCD literature. Limited psychological research has implied that male pupils present higher levels of LLCD than female pupils do (Esturgo-Deu & Sala-Roca, 2010; Kreisberg, 2017). Results of the current

study add further support to this as find, as was predicted, that male pupils reported significantly a higher presentation of LLCD than female pupils. This suggests that gender has a direct and possibly linear influence on low-level classroom disruption, and can thus be considered a proximal influence.

This result is somewhat in keeping with Bronfenbrenner's pattern of gender development (Darling, 2007), that claims gender has an innate and direct influence on behaviour. This approach suggests that males typically have a lower ability for self-regulating their behaviour than do females, resulting in a higher presentation of externalising behaviours (Silver et al., 2005; Weis et al., 2013). Importantly for the present study, these types of externalising behaviours, such as rocking on a chair or calling out are closely related to the behaviours associated with LLCD (Ofsted, 2014). As would be expected for a demand characteristic that tends to remain stable through the life span, the influence of gender remained stable for the synchronous data at both time points (Bronfenbrenner, 1984). The investigation of the gender role was extended in relation to appropriate conduct, proneness to boredom and weekly screen time.

Proneness to boredom.

Primarily, and as was predicted, for both the synchronous quantitative results the present study found that higher levels of proneness to boredom were directly associated with higher self-reported levels of LLCD, independent of gender. This result suggests that pupils, regardless of gender, were susceptible to boredom as a result of the classroom environment influencing the presentation of LLCD. This result is in keeping with the state boredom theory (Fisher, 1993). This theory postulates that a direct microsystem interaction between the pupil and contextual factors within the classroom, such as monotony will induce the negative feelings associated with boredom (Robinson, 1975). Further to this, it is suggested that a

need to alleviate negative feelings will then be sorted out by way of alternative motivations (Struk, Carriere, Cheyne, & Danckert, 2015). These alternative motivations are believed to be explicitly expressed as behaviours such as fidgeting and whispering, closely associated with the presentation of LLCD (Ofsted, 2014).

Historically, the consensus from governmental reports has been that teachers were responsible for the pupils' proneness to boredom in the classrooms (Elton, 1989; Steer, 2005). This view is supported by the teaching staff from the present study reporting classroom boredom as being partly their responsibility. One teaching assistant suggested that "it's dependent on the lesson, if they (the students) like the lesson, it's interesting and the teacher makes it interesting then it (low-level classroom disruption) dies down pretty quickly" (T8). This was furthered by a teachers' view that, "Well a lot of the time those things (low-level classroom disruption) happen because the lessons aren't really engaging the kids particularly well" (T6).

Importantly, the influence of proneness to boredom on low-level classroom disruption was lost at T2 when placed in the holistic model together will other influencing processes. The significance of all other variables in the model (gender, screen time and appropriate conduct) remained stable. This result is not all together surprising as the presentation of resource characteristics typically change over time. This result could indicate a change due to maturation or a change due to the dynamics in the classroom. It could be argued that in this last year of primary school, preparation is underway to aid the pupils' transition to secondary school. As activities in a classroom change and increase in this final year of primary school, a reduction of opportunities for pupils to experience boredom may occur, thus also the association between proneness to boredom and LLCD. Future research could investigate this change by examining further the relationship between classroom boredom and low-level

classroom disruption over these last year of primary school and the subsequent first years of secondary school. It may be that as familiarity to the new environment at secondary school increases then so may proneness to boredom and LLCD.

Screen time.

Adding support to the limited research available (Bartholomew, 2015) the synchronous data revealed that increases in screen time at home, identified as a proximal process, predicted increases in the presentation of LLCD in the school context. At this stage, this direct and proximal process was the same for the male and female pupils, with higher amounts of screen time used being associated with higher LLCD for the entire present sample of net generation pupils (Oblinger & Oblinger, 2005). This result has added concerns as the pupils in the present study reported lower amounts of weekly screen time (+30 hours) than the figure quoted (+45 hours) in a recent Ofcom survey (2017). The present study suggests that this statistical difference may have been influenced by the present study sample under estimating the amounts of screen time use. Future research investigating this direct association would be advised to collect supporting data from parent/guardians.

Gender and screen time

However, at both time points when a more holistic model was created which contained additional variables (gender, proneness to boredom, appropriate conduct) reflecting 'real life', the association between screen time and LLCD was found to be significant for male pupils only. The relationship between screen time and LLCD was also found to differ over time for the male and the female pupils. Across time, the significant relationship between screen time and LLCD was found for the male pupils but not female pupils. The repeated measures result infers a novel direction of influence, which indicates higher LLCD influences higher weekly screen time for male pupils. This suggests a cyclic relationship

occurring between these two variables with the possibility of additional variables having spurious influence on the sequence of events. For example, higher screen time may be causing higher LLCD; but is further mediated by an unmeasured variable, such as parental discipline. The parent may be grounding the male child as a result of negative teacher reports regarding the child's level of LLCD. Thus, the child's home based sedentary type activities such as screen time use, may be increased influencing further presentation of LLCD.

This exploratory result indicates that longitudinal research is required incorporating more than the two time points of repeated measures. Having more than two time points would allow for the model to establish this sequence of events between screen time and low-level classroom disruption that is limited with two time points (Rutter, 1994). It may be that the sequence of event, for the male pupil is being further influences by extraneous variable, as the example explains, or it may be that this is a manifestation of screen time at a different age.

Gender, boredom and screen time.

Investigations revealed that at T1 the synchronous relationship of screen time and LLCD was partially mediated by proneness to boredom for the male pupils. Even though gender had not been included in discussions, this cumulative association between screen time, proneness to boredom and LLCD was implied by teachers in the present study. For some pupils it was suggested that boredom would occur in the classroom context due to their need to be entertained all the time. One teacher stated, "Students were changing and could no longer sit on the carpet to take instructions like they used to" (T6). Another teacher included a direct reference to the content of social media use as influencing behaviour, "these days I mean kids shouldn't even be on Facebook until about thirteen or something but you know a lot of things go on where they're exposed to things they shouldn't be exposed to, not anything really serious but things like a general attitude and stuff" (T5**).**

The arousal theory of boredom (Eastwood et al., 2012) can be applied to this result. This theory postulates that repetitive periods of over stimulation due to such activities as screen time use will lead to an individual being unable to tolerate periods of under stimulation, such as might occur in a classroom (Zimmerman & Christakis, 2009). Importantly, the explicit behavioural consequences of the arousal theory are the seeking out of stimulation such as kicking a chair or humming which are in line with the behavioural presentation of low-level classroom disruption.

As covered earlier, interestingly at T2, once placed in a holistic model proneness to boredom was no longer a significant predictor of low-level classroom disruption; however, gender and screen time remained. Due to this being significant for the male pupils only it is suggested for future research that in addition to measuring the quantity of hours a pupil spends on screen time devices, it is also advisable to record the content of viewing in relation to gender. It may be that the gender differences seen in the present study are due to over stimulation for male pupils due to the different content of their viewing than that of their female peers.

Gender and appropriate conduct.

Appropriate conduct was included in the current study as an exploratory variable with no previous empirical research linking it to low-level classroom disruption; therefore, no prediction of influence was made. The resource characteristic of appropriate conduct taps into the degree to which an individual likes the way they behave, does the right thing, acts the way one is supposed to act, and avoids getting into trouble (Harter, 2012). The present study found some novel results.

The synchronous data analysis found that the association between appropriate conduct and LLCD was different for gender. The female pupils' perception of their appropriate conduct had no significant relationship to their presentation of LLCD. However, for the male

pupils lower self-perceived appropriate conduct was found to be a direct predictor of higher presentation of low-level classroom disruption. This result is somewhat in line with Bronfenbrenner's (Darling, 2007) theory of gender development which states that over time, as a result of the innate mechanisms that differentiate behaviour (i.e. self-regulation), socially acceptable stereotypes are created. It is suggested here that the results for self-perceived behavioural conduct reflect a stereotypical pattern of gendered behaviour. Simply put, the present study suggests that male pupils did not view their behavioural conduct as positive, and tended to *live up* to stereotypical male behaviour by exhibiting higher levels of low-level classroom disruption.

Furthermore, supporting this on examination of the repeated measures data the directional links between appropriate conduct and LLCD were found to be significant for both male and female pupils, but, in opposite directions. For the male pupils, higher presentation of LLCD had a significant negative effect on their self-perceived appropriate conduct. In contrast, the female pupils' self-perception of their behaviour significantly influenced their actual behaviour positively, resulting in fewer occurrences of LLCD. It can be suggested that this indicates that for the female pupils' their behaviour was influenced by their self-perceptions of what they should behave like. Whereas, the male pupils are expected to have higher levels of misbehaviour, and therefore, their behaviour is directly influencing their self-perception. The present study suggests that a gender-based self-fulling prophecy may be occurring, with stereotypical paradigms being played out in the classroom. It may be for example that the male pupils' presentation of LLCD influences their perception of their own behaviour, thus then influencing their presentation of low-level classroom disruption, and so on. It is recommended that future research be carried out with a longitudinal design extended to incorporate additional time points. This will allow research to investigate further

this suggested gender based cyclical pattern of influence between appropriate conduct and LLCD.

Resistance to peer pressure.

Contrary to the prediction, the proximal process interaction between the pupil and resistance to peer pressure in the classroom context was not associated with the presentation of low-level classroom disruption. It could be suggested that this result is due to the present research sample being preadolescent children. The pupils have not yet entered the developmental stage of adolescence where susceptibility to peer pressure is thought to be the strongest (Steinberg & Monahan, 2007). However, on examining the interrelationships between the predictor variables (Chapter 4, p.11) resistance to peer pressure was found to be significantly related to other variables, such as scholastic competence, self-esteem and proneness to boredom. These results indicate that for the present study pupils' susceptibility to peer pressure is present but does not have an association with LLCD.

Therefore, it is suggested the present findings add support to the view that irrelevant of age any classroom can be viewed as a social system of influence, which can be subject to change over time (Kobus, 2003). In keeping with the *time* aspect of the PPCTM (Bronfenbrenner, 1995), reports have suggested that LLCD has become normalised in primary schools (Bennett, 2017; Ofsted, 2014). Over *time* LLCD has become regarded as an everyday part of the classroom dynamics by many pupils (Ofsted, 2014; Tennant, 2204: Woods, 2008), independent from any influence of peer pressure.

The ongoing cumulative exposure to the proximal process between pupil and peer pressure could contribute to pupils conforming to, or *joining in* with, acts of low-level classroom disruption. Over a prolonged period, suggested here as stretching back 30 years, this pressure to conform would have contributed to a reframing of social norms in the classroom. This making the acts associated with LLCD part of perceived acceptable

behaviour for the pupils in that context, rather than being viewed as misbehaviour. Therefore, the result that resistance to peer pressure is not associated with LLCD is suggested by the present study as a change in the societal norms of the classroom.

This view is supportive of previous research suggesting a consensus of pupils across both primary and secondary level being unaware that LLCD was unacceptable behaviour (Ofsted, 2014; Tennant, 2004). Additionally, Ofsted (2014) stated some pupils who present LLCD seem to lack knowledge of what would be regarded as normative behaviour with one teacher saying that "in my experience students are rarely being deliberately rude, but lack awareness that interrupting is inappropriate" (p. 9). The teachers from the present study added support for this inference, expressing similar views. Teachers reported that pupils were unaware of their low-level behaviour, as if it was an unconscious act or a learnt normative behaviour. Further to this, when the pupil was reprimanded for such behaviour they would become confused and remorseful. From the teachers' point of view, personal frustration occurred from them thinking that pupils were capable of choosing not to carry out acts of low-level classroom disruption. Only to then realise that actually the pupils were not choosing to misbehave it was just how they were (T2).

Adding to this, historically, led by The Elton Report (1989) educational advisors have concluded that LLCD is fundamentally a concept that can be dealt with at a classroom level by efficient and well respected teachers (Bennett, 2018; Elton, 1989; Ofsted, 2014; Steer, 2005; Wilby, 2008). However, Haydn (2014) suggests that this discourse has led to some teachers refraining from explicitly admitting they have a problem with the seemingly minor classroom behaviours associated with LLCD and that to admit a problem would be to admit to being an ineffective teacher.

Teachers are being reported as tolerating LLCD by developing coping mechanisms such as ignoring it (Ofsted, 2014; Sherman & Cormier, 1974). The present study found

ignoring was a key classroom management strategy for dealing with low-level classroom disruption, with some of the teaching staff reporting turning a blind eye and picking their battles with incidents of low-level classroom disruption. This classroom management strategy seems far from ideal as it has been suggested that ignoring LLCD can exacerbate the frequency of behaviour, thus creating a vicious circle of LLCD and professional dissatisfaction (Brady, Forton, & Porter, 2012; Chang, 2013).

The present study suggests that these mixed attitudes to LLCD support past research that suggests a contradiction exists between the rhetoric and the reality of LLCD (Arbuckle & Little, 2004; Ofsted, 2014). As has been presented this gradual shift in acceptance by both the pupil and the teacher, has created a maladaptive social norm, with LLCD being regarded a part of the job or part of the classroom dynamic. The present study recommends that future studies investigate the acceptance of LLCD in primary schools as a matter of urgency.

Executive function.

Throughout its history, LLCD has been reported as a catalyst to higher-level disruption (Bennett, 2017; Sellgren, 2014; Steer, 2005). The present study dispute this and highlight the need to regard LLCD as a specific concept distinct from higher-level disruptions, such as bullying and aggression. The current research acknowledges that the explicit characteristics of LLCD, which do present similarly to the behaviours presented with forms of executive dysfunction (Ofsted, 2014), such as inattentiveness, inability to stay on task and/or fidgeting. However, the present study further suggests that the presentation of LLCD is independent from underlying mechanisms associated with executive dysfunction and associated conditions, such as attention deficit hyperactivity disorder and autism (Donders, 2002; Salimpoor & Desrocher, 2006). This view is in keeping with the empirical literature that consistently reports LLCD as widespread throughout the classroom population, not being confined to one sector of a classroom cohort (Arbuckle & Little, 2004; Bennett,

2017; Estutgo-Deu & Sala-Roca, 2010; Wallace, 2017). It is advised that future research examine the relationship between LLCD and underlying behavioural issues such as hyperactivity in more depth. By distinguishing between these two types of behaviour, future research can add validity specifically to the construction of a LLCD theory.

Home chaos.

As was predicted home chaos primarily supported a microsystem model of context interaction. Supporting the limited research (Bartholomew, 2015) a significant proximal process interaction was found. The pupils with a higher level of chaotic home environment also reported higher levels of LLCD in the school context. This result remained stable across the two synchronous time points. However, at both time points once home chaos was placed into the holistic model with additional variables (i.e. gender, proneness to boredom, global self-worth, appropriate conduct, television in bedroom and screen time, with the addition of sleep at time two) its significant correlation with LLCD was lost.

It is suggested that this result reflects debates that infer home chaos as a proxy measure for other social and psychological variables (Friend et al., 2014; Hanscombe et al., 2011; Shamama-tus-Sabah et al., 2011). The home chaos scale (Matheny, Wachs, Ludwig, & Phillips, 1995) is made up of 6 items each reflecting a different aspect of home life such as bedtime routines, meal time routines, noise levels and foot fall in the home. The present study suggests that the measure of home chaos as a single factor incorporates many separate factors that may be more associated with higher order misbehaviour, rather than with low-level classroom disruption. The qualitative interviews carried out for the present study reflected this suggestion as reference was made to singular factors such as mealtime routines. As an influence on LLCD, Teaching assistant 8 suggested that if a child comes to school without having breakfast, in her opinion that child would be more fidgety in class.

This result indicates that this line of inquiry should be investigated further. It would be beneficial for future research to expand on this by deconstructing the home chaos measure (Matheny, Wachs, Ludwig, & Phillips, 1995) into single dimensions and investigating these separately. It is strongly suggested that any future research considering home chaos as an antecedent also seeks to unpack the concept into individual risk factors that may have differing influence on the presentation of LLCD.

Parenting practices.

In keeping with the prediction the qualitative findings for the present study found that 80% of the interviewees perceived LLCD to be influenced by the home context, by factors associated with parenting practices. Some teachers concurred with research that suggests parents are the main agent contributing to the socialisation of a child (Ladd & Pettit, 2002). Both teachers and teaching assistants offered their perception of complex bio-ecological antecedents of LLCD being related to the parents. One teaching assistant suggested the influence of parenting skills "sometimes it's their home background, its, they might have nurture issues" adding that "its attention seeking…they're not getting the attention they want so, they trying to find some" (T1). However, contrary to these findings and the hypothesis, the quantitative analysis revealed no significant relationship between parenting practices and pupils' presentation of LLCD at school. It is argued here that these conflicting results are due to the lack of research linking parenting practices with LLCD and that the prediction had been based on literature that associated parenting practices to more extreme behaviours (Loeber & Dishion, 1983; Kolko & Kazdin, 1986). The current research therefore concludes that LLCD is not associated with higher-level behaviours, such as bullying and aggression and therefore is not associated with poor parenting skills.

Sleep, extra-curricular activity and TV in the bedroom.

The present sample, at both time points averaged 10 hours a night sleep, meeting The National Sleep Foundation's (2017) recommendations of 9-11 hours of sleep each night for children aged 6-13. Therefore, it was not surprising that at T1 the result contradicted the prediction and no relationship at this age was found between the pupils' weekly hours of sleep and LLCD. For T2, sleep was found to be associated with LLCD. However, this significance was lost once a holistic model was applied. It would be beneficial to the creation of a LLCD discourse to extend the age of future samples to include adolescence pupils, who would then have more autonomy over their sleep patterns than the pupils in the present study. This would then assess if maturation affected the relationship between sleep and LLCD.

An exploratory prediction was made that extra-curricular activity carried out by the pupil in a home-based microsystem would be related to the pupils' presentation of LLCD in the microsystem of school; however, no relationships were found. There is a lack of literature linking extra-curricular activity with low-level classroom disruption. Therefore, this prediction was based on previous literature that extra-curricular activity can aid in the reduction of general behaviour problems (Massoni, 2011), which have been associated with self-regulation (Becker & McClelland, 2014) and attention (Chaddock et al., 2010). It is therefore suggested that extra-curricular activity has no effect on the presentation of low-level disruption in the classroom.

No previous research has been found that links having a television in the bedroom to low-level classroom disruption. However, previous research has suggested that watching television per se is associated with behaviours conducive to low-level classroom disruption, such as inattention (Fuller et al., 2017). In line with recent statistics (Rideout, Foehr & Roberts, 2010) 70% of pupils in the present study had a television in their bedroom. As

predicted for the pupils with a television in the bedroom it was found that they presented higher occurrences of low-level classroom disruption, at both time points. However, this association was not robust and when television in the bedroom was placed in a holistic model containing other significant predictors the significance waned. It is therefore suggested that having a television in the bedroom is not directly or indirectly associated with presentation of LLCD.

Parents screen time.

Recent research has suggested that the more hours a parent spends each week using screen time, the less direct interaction they will have with their child (Radesky et al., 2016) having a detrimental effect on a child's behaviours (Kirkorian, Pempek, Murphy, Schmidt, & Anderson, 2009). It was anticipated that a displacement process would occur and a proximal process interaction in the home context of the parents' distracted behaviour whilst using screen time would influence the pupils' presentation of LLCD in the school context. However, contrary to prediction, parents' weekly screen time was not related to the pupils' LLCD. A most recent report suggested adults in the UK were using up to 10 hours of screen time a day (Elsworthy, 2018). The parents in the present study reported a much lower weekly average of screen time use at 18 hours, or 2.5 hours a day. This result could be due to the self-reporting of parents' screen time, with recent media coverage of the negative impact of parents' screen time use on their child's behaviour outcomes parents could be under reporting. It could also be that the parents' simple did not add up the fragmented times of screen time and therefore reports were underestimated.

Socioeconomic status.

A robust relationship between socioeconomic status and general classroom behaviour has been reported (Silver et al., 2005). With suggestions that pupils from higher

socioeconomic backgrounds tending to behave better than those from lower more disadvantaged backgrounds (OECD, 2010). However, no research directly linking socioeconomic status to LLCD exists and the present study was unable to add any results to this discourse. It is suggested here that LLCD could have no economic boundaries. This view is also in keeping with the empirical literature that consistently reports LLCD as widespread throughout the classroom population, not confined to one sector of a classroom cohort (Arbuckle & Little, 2004; Bennett, 2017; Estutgo-Deu & Sala-Roca, 2010; Wallace, 2017).

3. **What is the stability or change of low-level disruption in the classroom over time?**

The results from the teaching cohort interviews supported the rationale of the present research. Adding robust evidence of frequency, both teachers and teaching assistants in the present study reported similar occurrences of LLCD to that reported in the literature, citing 'constant' and within 'every lesson' frequency (Arbuckle & Little, 2004; Ofsted, 2014). The bio-ecological stance states that human development must allow for the progressive mutual accommodation between the developing individual and the external environment of *time* (Bronfenbrenner, 1995). However, no previous accounts have been made of changes in presentation of LLCD over time. Therefore, the present study pioneers the investigation into the developmental trajectory of low-level classroom disruption. Results confirm that pupils' self-reported presentation of LLCD increased across the developmental trajectory of one year. This result indicated a small effect size, however was still a significant increase and was evident for both male and female pupils. This is an important finding in the study of LLCD and future research must aim to extend this investigation this change over the developmental traject6ory to include additional school years, both below and above those investigated in the current research.

4. The Impact of LLCD on Teachers and Pupils

The Teacher

Teachers have reported being positively confident in dealing with the daily occurrences of LLCD, moreover, regarding it as part of their job (Ofsted, 2014). However, alongside this confidence past research has also suggested that the reality of dealing with LLCD is having a wearing effect on teachers with dramatic impact on their well-being (Ofsted, 2014; Houghton, Wheldall, & Merrett, 1988; Steer, 2005). This contradiction has been robustly supported by the teaching staff in the present study with all explicitly expressing similar views of confidence in dealing with low-level classroom disruption. Pertinent to this view one teacher stated that LLCD was the bread and butter of being a teacher (T6). However, these same teachers reported LLCD as being tortuous, draining and frustrating.

The present study recognises that existing workload demands made on teachers is causing heightened professional stress. A recent report from The National Association of Schoolmasters Union of Women Teachers (NASUWT, 2017) has suggested that some teachers are working more than 60 hours a week with 85% of the 4,908 teachers asked finding it very difficult to maintain a healthy work-life balance. Moreover, 1 in 10 of them additionally admitted to taking antidepressant drugs to cope with work stress and 6 in 10 said their job had impacted on their mental health. One teacher added “I often think about self-harming or crashing the car so I don’t have to go to work” (Pells, 2017, para.5). Teachers have cited workload as the biggest factor of job dissatisfaction (NASUWT, March 2017) and volume of work as a reason for leaving the profession (NUT, 2015).

Compounding this LLCD has been continuously cited as the primary behaviour issue in the classrooms (Halstead & Jiamei, 2009; Houghton, Wheldall & Merrett, 1988; Ofsted, 2005). With a recent survey from The National Association of Schoolmasters Union of Women Teachers (NASUWT) claiming that 81% of teachers believed that LLCD was an issue in the classroom (NASUWT, March 2017). It was therefore not surprising that findings for the present study linked workload stress with low-level classroom disruption. A class teacher reported how her personal stress level led her husband to question if she should remain in the job (T2), while a teaching assistant stated that LLCD was tiring and drained them constantly, adding to the stress already experienced due to work targets and deadlines (T1). Further to this, research has stated that pupil misbehaviour, not workload has been suggested as the most salient stressor relating to professional burnout among teachers (Ingersoll, 2001; McCormick & Barnett, 2011).

Emotional exhaustion specifically related to classroom misbehaviour has been suggested as a core factor of burnout (Aloe et al., 2014; Skaalvik & Skaalvik, 2011). In the contemporary accounts given for the present research, teachers reported similar symptoms to those associated with burnout when discussing low-level classroom disruption. Teacher 2 stated that “It’s quite stressful,” and Teacher 5 shared more of their experiences “It was horrendous, like it almost broke me you know. It was only two days a week and I totally lost all my confidence and I’ve been a good teacher throughout the years and all of a sudden, within 5 weeks of two days with this class, I thought I can’t do this anymore, I’ve lost my touch”. In tune with this, the governmental advisors recently declared LLCD as a toxic influence in the classroom with the strength to derail an entire lesson (Bennett, 2017, p.22). Worryingly, burnout has been empirically linked to attrition among the teaching profession (McCarthy, Lambert, O'Donnell, & Melendres, 2009).

In line with the implication that LLCD adds to burnout and consequential teacher attrition, a key finding from the present study was a cyclic pattern of association between LLCD and teacher attrition. When asked to describe how they felt about dealing with LLCD the teaching staff reported strong feelings such as a loss of confidence, heightened stress levels, physical exhaustion and a lack of job satisfaction. All these feelings are associated with symptoms of professional burnout, in turn being further associated with higher teacher attrition (Skaalvik & Skaalvik, 2017).

Previous research has robustly linked more general classroom behaviour to professional burnout (Aloe et al, 2014; Ingersoll, 2001; McCormick & Barnett, 2011). However, the results from the present study now enable a link to be inferred specifically between low-level classroom disruption and professional burnout (Freudenberger, 1974). This result implicates a negative cyclic pattern of association between higher occurrences of low-level classroom disruption and the need for supply teachers. Put simply, it is suggested here that higher levels of low-level classroom disruption would lead to higher levels of professional burnout for the teachers, leading to higher attrition, therefore the need for more supply teachers, thus leading to higher occurrences of low-level classroom disruption.

The Pupil

Importantly, the present study teaching staff also reported on the impact LLCD has on the academic achievement of the pupils. Lord Elton (1989) stated that for the pupil an "orderly atmosphere" (p.54) where a positive educational experience can be achieved is a fundamental aid to a successful developmental trajectory. Fundamental to highlighting the impact of LLCD, the present study concurred with research that LLCD is a class wide interruption not just to the perpetrator but also to their peers (Zamorski & Haydn, 2002). Interviewees from the present study reported incidences where, due to noise created by

LLCD, some children could not hear instructions or became distracted and lost concentration. This is in keeping with the view of Van Tartwijk and Hammerness (2011) who state that if the classroom atmosphere is disorganised "learning is much more difficult, if not impossible" (p.109).

A theme that was found from the present study data was that of inconsistencies in staffing leading to increases in LLCD. The teachers and the teaching assistants told of pupils becoming upset when a supply teacher was in charge of the class, adding that this turnover of different staff has a "huge negative impact on the children" (T8). Another added that she perceived that some pupils were not resilient to this change in staff (T2). These views support those presented in research by Aloe et al. (2014) who suggested that decreases in learning time due to incidents of LLCD were as a result of having a supply teacher in the class.

Troublingly, research has suggested that sustained interruptions to academic learning can lead to decreases in pupils' self-efficacy (Hardre et al., 2007), which in turn can lead to apathetic learning (Edlounge, 2015). These findings underscore the fundamental need to highlight and account for the specific impact that LLCD has on the pupil and their academic trajectory. It also further stresses one of the aims of the present study, to make credible the distinguishing of LLCD from higher-level behaviours.

Limitations and Future Research

This thesis revealed important connections between gender, proneness to boredom, screen time and LLCD, and is one of the first pieces of research to investigate the antecedents of LLCD. However, this research must be replicated and developed in order to draw complete conclusions, with the limitations from this research needing to be addressed. The first limitation of the current research to be addressed is the issue of including research in this thesis that is not clearly defined as LLCD. The present study recognising the inclusion of this additional evidence is not an ideal approach to such investigations. For example, there is a

lack of research specifically associating proneness to boredom to LLCD. Therefore, the literature used to support the inference of association was based on research that presented factors that resembled the characteristics of LLCD, either physically or cognitively (Struk et al., 2015). However, the literature included in the review was only included if the behavioural factors being referred to kept within the strict qualifying criterion as laid out in Chapter 1 for defining of LLCD. As with any pioneering exploratory research a foundation of evidence must be laid in order for future investigations to take place that can be used to adapt and develop a credible theory of low-level classroom disruption.

A limitation of the study to consider was the use of an *opt-out* rather than an *opt-in* style of recruitment. The opt-out approach to sampling has been regarded as ethically problematic in relation to an opt-in method. For example, a parental information letter may not be passed on by the child to the parent, taking away the parental choice for their child not to participate. However, considering also that the head teacher was acting as loco parentis for the pupils the present study makes the distinguished between *opt-out* in relation to approaching the initial sample (from the parent) and *opt-out* in relation to consent itself (from the pupil). All the pupils whose parents had not returned the opt-out slip were given the additional personal choice of participating at the start of each data collection period. Furthermore, to minimise any personal embarrassment or uncomfortable feeling that opting-out may have created for the pupil, instructions were given by the researcher to the class that if any pupil didn't want to participate they were to either carry on with the work being done or to read quietly. Therefore, not requiring the pupil to publicly opt-out, thus not drawing attention to any child individual by their peers. It may be that future studies consider using the *opt-in* style of recruitment rather than the *opt-out* style.

One of the main goals of the current study was to pioneer a more holistic understanding of LLCD, extending the investigations and measurement of possible influential

variables outside of the classroom environment. In doing so, a limitation of the present study was that limited consideration was given to the existing influences that exist in the classroom climate. As has been highlighted throughout this thesis educational reforms and policies help to mould the classroom climate, such as the introduction of the National Curriculum, inclusion and learnt behaviour, and the choice of behaviour management techniques being implemented, are all implicated in having an impact on behaviour, including LLCD. It would be advisable for future research to include measurements or observations of these concepts in order establish the influence of these on LLCD or to control for such, adding validly to the results found.

A further limitation to consider is the use of self-reporting quantitative measures for the more subjective variables. To overcome this, as was stated in Chapter 5, a cross validation analysis was carried out to control for response bias of the self-reported LLCD scale. At T1 the class teachers from the participating schools completed the LLCD scale for all the participating pupils. The scores from these were found to be highly correlated with the pupils' self-reporting of LLCD at T1, thus limiting response bias. The conducting of such a procedure would also have been beneficial for the parents' reported measures as these could be viewed as especially sensitive to reporter bias or social desirability bias.

An example of this is the potential for obtaining biased results when the parents recorded their screen time use. Recent reports have inferred the detrimental effect of parental mobile devices use on the parent-child relationship. This reporting of negative associations could be seen as influencing the reporting of weekly screen time by the parents in the present study. It could also be that the parents underestimated their screen time use, especially the amount of time spent on smart phones. Due to the repetitive nature of smart phone use adding the amount of time spent on their smart phones could prove ambiguous. The results from the

survey support these concerns as on average the parents reported 18 hours of screen time *a week*; substantially lower than a recent UK report has suggested, whereby adults are using up to 70 hours of screen time a week (Elsworthy, 2018). Advances in smart phone technology now enable researchers to gain insight into time spent on devices. Apple has created *Screen Time*, an app that records daily activity and reports back to the consumer with notifications of their usage and how often they pick up their phone/iPad (Apple, 2018). This app and similar others could be utilised in future research to give a more accurate amount of screen time use.

Likewise, response bias could have been an issue for the self-reported parenting practice measure. Early on in the initial stages of the project development observational tools such as the etch-a-sketch game were considered as being more truthful in reporting the relationships between parent and pupil. However, with the potential of over 300 families being included this type of data collection was ruled out, as time would not have permitted such a large-scale observational task to be conducted. It is recommended that to overcome this it would be preferable to collect parenting scores simultaneously from both the parents and the child rather than to rely on a single self-report measure.

Self-reporting may also be seen a limitation for the pupil measures of weekly sleep and weekly screen time. The totals provided by the pupils may be subjective to recollection error or not fully understanding the notion of time. To limit the issue the pupils were asked to report their bedtime and getting up time on a normal school night/day (i.e. Sunday through to Thursday) and then again on a normal weekend night/day (i.e. Friday and Saturday), similar was done for the weekly screen time hours. These were then multiplied and summed to gain weekly hours of sleep score and weekly hours of screen time score. Simplifying the information, the pupils needed to consider was thought to be advantageous in helping them recollect more accurately. Even though this precaution was taken, it may also have been advantageous to gather parent reported hours of sleep. However, parental reports can have

the limitation of being subjective, especially when as the parent may not be in the same room as the sleeping child for the entirety of the data collection. Therefore an electronic device, such as the waist-worn accelerometer could be used in future research enabling precise estimates of sleep duration, from sleep onset to end of sleep (Chaput, Katzmarzyk, LeBlanc, Tremblay, Barreira, Broyles, ... & Lambert, 2015).

The present study recognises that measuring such a diverse concept as *screen time* can be problematic. Screen time use is fast becoming more convergent, with ambiguous overlapping of multi-tasking with various devices. An individual can be watching a programme, whilst having a Skype conversation with a group of friends on their iPads. To measure the notion of *screen time* as one single measurement of time may need, in future research to be reconsidered to account for this over lapping and "multi-screening" (Smith, 2012). This will enable a more accurate representation of what is meant by weekly screen time hours.

A limitation of the qualitative section is the small sample size. Ambiguous suggestions of what constitutes a good sample size range from 5-25 participants for phenomenological research (Creswell, 1998); up to 30-50 interviews for a grounded theory methodology (Morse, 1994). The qualitative aim of the present study was to collect in-depth knowledge about the impact of low-level classroom disruption by interviewing currently employed teaching staff. With the aid of an inductive interview style, the information given by the teaching staff honed in on their expert knowledge of the topic. This technique aids the achieving of theoretical saturation, thus reducing the need for larger numbers of participants (Jette, Grover & Keck, 2003). However, these findings cannot be generalised to the general population and will therefore be treated as suggestive rather than conclusive (Monette, Bigras & Guay, 2011). The sample mirrored the statistics for England that state 80% of teaching staff at primary level are female with a ratio of 1/7 male-female (DfE, 2016).

There was also the limitation of the study time constrictions, this limited the repeated measures strand of the study to two time points. A longitudinal study design with more time points would provide better information as to directional causality between the variables. As was stated the relationship found between screen time and LLCD could be part of a circular pattern of influence that over a longer period may remain or may change. To incorporate the chronosystem further would mean more data collection points over extended time span, which was out of the present studies reach but a fundamental recommendation for future investigations.

In addition to these future research recommendations, the present study recognises that it would have been in the interests of LLCD research to have applied additional analysis techniques to the collected data. First, more longitudinal based analyses of the present study data. By applying only, cross-lagged panel models to the repeated measure data has restricted the information that could have been extracted to direct relationships only. A path analysis model could have been constructed to estimate the magnitude of direct and also indirect connections between the variables over time. For example, it would have been beneficial to pose the research questions: does screen time in the home context at T1 directly increase LLCD at T2, and does screen time at T1 indirectly increase LLCD at T2 through proneness to boredom at T2. It is highly recommended that extending the methods of analysis takes place in future LLCD research. Second, a multilevel analysis would have enabled a simultaneous assessment of the influences from the individual characteristics of the pupil with the additional assessment of school and class differences. Future research would benefit from using these additional techniques to unpack further the influences of LLCD.

Theoretical Implications

Mixed method design.

A Strength of this research was the use of an expansion approach to mixed methods, which substantially expanded the LLCD literature. By using a combination of quantitative and qualitative research allowed the present study to address the four research questions which could not have been completed by using quantitative or qualitative research alone. Using quantitative research to collect data from the schools and the home this study revealed the antecedents of LLCD. This reliable data can be generalized to a wider population. Adding to this the qualitative data allowed the question of 'why' to be addressed to LLCD. The qualitative data provided a rich account of the reality that the impact LLCD has within the class, as perceived by the experts, i.e. the teachers.

Repeated Measures.

An additional strength of the present study was the use of a repeated measures design. This allowed for a pattern of LLCD to be determined. Previously, no research has measured the stability or change in LLCD over time. The present study pioneered this investigation with repeated measures results suggesting with maturation so LLCD increases. This developmental trend may have been possible to establish with cross-sectional data. However, the use of repeated measures data, tracking the same cohort increased the validity of result. Importantly, the use of a repeated measures design made it possible to infer a directional relationship between the variables of screen time and appropriate conduct with LLCD.

Theoretical framework.

The use of the guiding framework, the Person-Process-Context-Time model (Bronfenbrenner, 1985) allowed the investigation of the processes that influence LLCD, including systems outside of the classroom environment. These included looking specifically

at the pupil samples' characteristics and extending into the home, to include parental influences. Thus, the quantitative findings from this research suggest that the high prevalence of LLCD experienced in primary schools in England could be accountable to some of the bio-ecological antecedents that were investigated. These factors, existing within the pupils' bio-ecological systems, form a complex relationship of interplay (Bronfenbrenner, 1985). Each influencing factor will have effect on the next, and in turn, be affected by the previous. Based on the quantitative research conducted in this study it appears that the main antecedents of LLCD from those investigated for the present study were gender, proneness to boredom, screen time and self-perceived appropriate conduct.

Importantly for the formation of a LLCD theory, these results indicated that these types of behaviour are not specific to the individual differences of a pupil, specifically: resource characteristics of executive function abilities and global self-worth. This is further acknowledged by LLCD being described as widespread by Ofsted (2014). This view was supported by the views of the interviewed teachers and teaching assistants in the present study, stating that LLCD was common and constant in their classes. These results highlight the need for future research to specifically make the distinction between different types of classroom behaviour, to separate LLCD from higher-level disruption, regarding and investigating each as individual concepts.

Applied Implications

Fundamentally, no previous research has scientifically addressed the stability or changes in presentation of LLCD over time. The current study pioneered this line of enquiry and found that LLCD increased with age. It is argued here that this result bolsters the need to examine the antecedents of LLCD in schools throughout England. Furthermore, this result adds urgency to the following applied implications. For the present study, the key antecedents

to LLCD were found to be pupils' gender, pupils' screen time use, proneness to boredom and pupils' self-perceived appropriate conduct. The present study also highlighted the impact LLCD has on teachers and makes suggestions as to why LLCD exists.

Recently, the Department for Education (2016) stated recently that 3,280 teaching positions in England are being covered by temporary staff. The current thesis findings suggest that a contributing factor to this statistic is LLCD. Supporting previous reports (Ofsted, 2014) it was found that the teaching staff view LLCD as part of their job. However, they also reported the negative impact LLCD has on their well-being. This research has enabled a pioneering link to be explicitly made between LLCD and professional burnout. Furthermore, the research presented here suggests a negative cyclic pattern of association between higher occurrences of LLCD and the need for supply teachers. Put simply, it is suggested that higher levels of LLCD could lead to higher levels of professional burnout for the teachers, leading to higher attrition. Therefore, the need for more supply teachers, thus leading to higher occurrences of low-level classroom disruption.

Furthermore, the current research concurs with the government's acknowledgement that LLCD has become part of school culture. The current research findings support the need for the recent governmental campaign, to reframe cultures in the classroom. This campaign aims to shift classroom culture to one conducive to effective teaching and learning (Bennett, 2017). However, the present research results suggest that LLCD has, over time, become normalised in schools. The present study argues that this has been led by the ongoing educational bodies attitude that LLCD as minor misbehaviours, being manageable within the class by effective teachers (Elton, 1989; Ofsted, 2014; Steer, 2005).

Increases in such behaviours can be attributable to a lack of pupil engagement caused by maladaptive classroom climates, thereby creating a contradiction between the rhetoric and

reality of dealing with low-level classroom disruption. The present findings support this, with teachers reporting confidence in dealing with low-level classroom disruption, regarding it as part of their job, whilst feeling drained and frustrated by the frequency and impact on that it has in the classroom. Further to this, teachers have self-reported LLCD as part of the classroom climate and freely admitted to ignoring it, thus continuing to explicitly accept it in the classroom.

Adding to this attitude, in the three participating schools LLCD was found to be insusceptible to peer pressure. This result indicates that as well as the teachers, the pupils regard LLCD as a normal part of their classroom. Teachers from the current research were supportive of this, reporting that pupils did not think LLCD was an act of misbehaviour. It is suggested here that the governmental recent attempts to reframe cultures in the classroom would be futile, unless the attitudes of the pupils and teachers to LLCD were directly addressed as part of any interventions.

Further to this, it is suggested that the existing management of LLCD needs to be changed. It would be advisable to consider the underlying factors associated with such behaviours. At present, the behaviourist-based classroom management strategies dismiss such, focussing on the consequential outcome, i.e. the behaviour. Furthermore, the present governmental advisor is acknowledging “outward behaviour being a far more obvious level to address than internal states” (Bennett, 2017, p, 13). Arguing against this attitude, Nash, Schlosser and Scarr (2016) state there is a pressing need to address pupil misbehaviour with more of a psychological perspective, to provide a better understanding rather than a quick solution to the problem; which is currently offered by the behaviourist reward and sanctions classroom management strategy. The present study concurred with the views of Nash et al. (2016) and argues that there is a need to reframe the classroom culture and decrease LLCD.

In order to do so, it is critical that teachers have a deeper understanding of the underlying antecedents. For the current study the key antecedents to LLCD were found to be pupils' gender, pupils' screen time use, proneness to boredom and pupils' self-perceived appropriate conduct; therefore, a key next step would be to raise awareness of these antecedents amongst teachers and parents.

Firstly, adding support to the empirical knowledge, the male pupils in the present study displayed significantly higher presentation of LLCD, compared to their female peers. This gender difference of LLCD presentation remained throughout the analysis. This difference seemed to be further associated to the pupils' self-perception, concurring with gender-based stereotypes for behaviour. As would be expected in any classroom, increased proneness to boredom was found to influence behaviour, specifically increasing LLCD. It is suggested that this is a direct effect of the classroom environment, similar to would be experienced in any school and classroom. However, for the male pupils, proneness to boredom in the school context was found to further increase their presentation of LLCD. This increase was found to be further associated with the amount of hours screen time they experienced in the home context, with increased hours resulting in increased LLCD.

These findings are of great importance to future research investigating low-level classroom disruption and furthering the foundations of a model of low-level classroom disruption. A fundamental line of inquire would be how teachers manage low-level classroom contingent on gender (Kokkinos et al., 2004), with a limited response to male pupils displaying stereotypical male behaviours. Further to this the current research results add weight to the present government's concerns over the potential hazard to childhood of extended use of screen time (Agerholm, 2018). As was highlighted in Chapter 1 to qualify as a proximal process a potential influence must occur over time and on a regular basis with the

systematic nature of this interaction having the ability to exact or distort the behavioural trajectory of the developing individual (Bronfrenbrenner & Ceci, 1994). This was found to be the case for the present study pupils with this pioneering result.

From the microsystem of the home screen time was found to be an antecedent of low-level classroom disruption. However, the result was encouraging for this net generation females in the present sample with their weekly screen time use having no long term negative effect on their presentation of LLCD. However, these finding suggests, for net generation male pupils' screen time use has a negative impact on school life, specific to the current project on LLCD. Importantly for the male pupils the additional surge of boredom seems to be associated with the over stimulation whilst using screen time in the home, which in turn is having a cumulative effect on their presentation of low-level classroom disruption at school. This novel finding highlights the need for further nationwide campaigns aimed at reducing the amount of hours that pre-adolescent children spend using screen time devices.

These finding have fundamental implications for the macro-level educational views that LLCD is manageable in the classroom. The present study suggests that the treatment of LLCD in schools needs to take advantage of these findings and change the classroom management techniques used. The current thesis argues that the wider implications of LLCD need to be given fundamental consideration when changes are being made to governmental and school policies.

Conclusion

The overall aims of this thesis were to identify the antecedents of low-level classroom disruption, assess its stability or change overtime, and to highlight the impact LLCD has on teachers and pupils. By fulfilling these aims, this document provides a novel insight into

LLCD. The semi-structured interviews with the primary teaching staff concurred with previous teaching cohorts and confirmed that from a staff perspective LLCD was still the number one fundamental behavioural issue in schools. Furthermore, their views concurred with the view that occurrences of LLCD can be regarded as an expected behavioural norm in the classroom. Additionally, the current study found that the pupils' presentation of LLCD had significantly increased over the year that this study took place. These results represented fundamental implications for both the teacher and the pupil. LLCD was found to be having a negative effect on the personal wellbeing of the teaching staff, with implications of such leading to symptoms conducive with professional burnout. Additionally, that due to the repetitive nature of LLCD teaching was being constantly suspended, thus having serious implications on the effectiveness of the learning that was taking place among the pupils.

The literature review presenting a history of LLCD stemming from the Education Reform Act of 1988 (Gillard, 2011), highlighted that LLCD had been, and continues to be viewed as an issue capable of being maintained and controlled at the classroom level by teachers (Bennett, 2017; Ofsted, 2014). The present study acknowledged and described important classroom level influences on behaviour such as behaviour management strategies, inclusion in mainstream classrooms of pupils with atypical behaviours and peer pressure.

One result that applied to the classroom context is the influence on LLCD of the pupils' gender. Research connecting gender to LLCD has been limited, but has suggested that LLCD is a factor associated more with male pupils than with female pupils (Kreisberg, 2017). Building on previous limited research the present study found similar with male pupils having significantly higher presentation of LLCD than their female peers do. Gender differences between self- perceived appropriate conduct and LLCD were also found. For the male pupils, higher presentation of LLCD was found to have a significant negative effect on their self-perceived appropriate conduct. In contrast, the female pupils' self-perception of

their behaviour significantly influenced their actual behaviour positively, resulting in fewer occurrences of LLCD. This result adds to the limited research suggesting that presentation of LLCD differs due to a stereotypical paradigm in the classroom between the male and female pupil behaviour (Kreisberg, 2017). This suggests that male pupils present higher amounts of externalised behaviours such as being over active, whereas female pupils present higher amounts of internalised behaviours and act quietly, in a more controlled manner (Zahn-Waxler, 1993). This result has fundamental implication for the behaviour management strategies recommended by school policies. The literature review found that behaviour management of LLCD can be contingent on gender (Kokkinos et al., 2004), with male pupils not being reprimanded for externalising behaviour, such like LLCD as this type of behaviour would be as expected, thus potentially perpetuating the issue.

Also from within the classroom context and as had been anticipated, a direct link between higher proneness to boredom and higher LLCD was discovered. This supported the view that state or academic boredom influences behaviour in the classroom. However, this direct relationship was only at T1 for the present sample. This change of result between time points could be due to maturation of the pupils but also to changes taking place in the classroom climate. As the present study did not measure any classroom influences directly it would be beneficial for further research to take these into account and control for these. It is suggested here that the strategy of contextualising LLCD from only a classroom level has led to remedial remedies and quick fixes (Nash, Schlosser & Scarr, 2016), that need to be repeated as often as the LLCD occurs. Thus increasing teaching staffs' stress levels and decreasing pupil-learning time. This study addressed this issue and extended the understanding of LLCD from outside of the classroom, identifying and investigating certain proximal and distal influences of LLCD.

Further to the relationship found between proneness to boredom and LLCD a cumulative association was discovered for the male pupils included the additional home context influence of screen time use. The association between increases in hours of screen time and increases in LLCD was partially mediated by increased levels of proneness to boredom. Thus suggesting that for the male pupils, in relation to LLCD proneness to boredom can also be viewed as a dispositional trait, influenced by factors outside of direct context of the classroom. This gender specific cumulative relationship was lost at T2, again this could be due to changes within the classroom, and this direction of research needs more investigating. The direct relationship between screen time use and LLCD remained for all the pupils. This sustained direct link between the pupils' increased hours of screen time in the home context with increases of LLCD in the school context was found at both time points. No research previous has found a direct link between screen time use and LLCD. This is a fundamental finding for the present study as the sample are the Net generation (Oblinger & Oblinger, 2005) and live in a world embedded in technology, including increasing amounts of screen time. Positively for the female pupils however, over time screen time was not a significant influence on their presentation of LLCD, or vice versa. However, for the male pupils a novel pattern of influence over time between screen time and LLCD suggested that higher LLCD influenced higher screen time use, inferring a possible ongoing pattern of influence. By extending this line of investigation further, to include a longitudinal design with more than two time points, more of this pattern of influence can be unpicked.

These findings add evidence to support the recent advice given by governmental advisors that to tackle LLCD. Classroom culture must be redirected in a more positive direction (Bennet, 2017), that the regard for LLCD as socially acceptable behaviour in schools needs to be addressed. However, in regards to this view, these finding have implications for the long-standing history of LLCD being solely the responsibility of the

teaching staff at classroom level (Bennett, 2017; Elton, 1989; Ofsted, 2014). LLCD needs consideration in the same vein as higher-level classroom disruptions with a more holistic whole school approach to understand it applied. Further research specific to gender stereotypes undertaken as a priority needs to take place, to revise behaviour management policies regarding LLCD and the acknowledgment of additional influences outside of the classroom such as screen time. This would lead to the alleviation of the sole responsibility of LLCD directed at the teaching staff. Thus in turn implicating a more shared responsibly for the presentation of LLCD from a wider perceptive than from just the classroom.

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Appendix 1: *Letter to schools*

Dear[Head-teacher's name] [DATE]

I am a Psychology PhD research student at Canterbury Christ Church University. My research topic is the influences on low-level classroom disruption in primary school.

I understand this research may look quite time consuming and involved. As an experienced research assistant and having collected data from primary schools many times before I can assure you that I am able to keep any disturbance to your classes and routines to a minimum. I have a DBS certificate from Medway Council.

This research is pioneering. I and Canterbury Christ Church University feel it is extremely important to assist in the knowledge of which child hood factors influence the presentation of low-level disruption in your classrooms. Then interventions and government policies can be informed to help ease this every growing issue. I have given a brief over plan of my proposed research below. I would very much like to arrange a meeting to discuss further your school assisting in this very important project.

Research Background information:

Concerns are being raised relating to low-level disruption within primary and secondary school classrooms. Ofsted (2014) have highlighted that primary school teachers reported the most frequent disturbances from the children during a typical day were; calling out 50%, disturbing other children 50% and fidgeting with equipment 33% (Ofsted, 2014, p, 8).

With 22% of primary school teachers reporting low-level disruption as having a high impact and 40% reported a medium impact on their classroom this indicates that teachers perceive low-level disruption as an issue that is negatively impacting on their classroom (Ofsted,2014).

The present study aims to utilize the bio-ecological systems that surround a child and the interactions of the main factors within the systems as the foundations for consequential low-level classroom disruptive behaviours. In order to acquire a better understanding and to theorise the phenomenon that is low-level classroom disruption.

Summary of study: (Repeated twice with a year between data collection points, please see time scale diagram attached).

As we are looking to infer causation this study is of longitudinal design and we look to repeat sections of the data collection twice with a year gap in between.

Looking at the influences of low-level classroom disruptions in key stage 2 (years 4 and 5)

Data gathered at school Approx time each class = 15mins per class

Chaos (home life), Information and communication technology use, Leisure boredom levels
Extra-curricular activities ,Levels of low-level disruption factors.

Executive function skills: Individual tasks. These will be carried out as and when to suit the school time tables.

Classroom teacher Interviews: compiling views/ thoughts of low-level disruption (10 mins)

Data gathering at Family stage:

NB: Information concerning this stage will be included on the information and consent letters to be sent out and returned back via your school. However, data collection for this stage will be carried out on line independently of the school.

Systems at home: Parents will be asked to participate in an on line survey, investigating parenting styles and parental information and communication technology use.

Please see attached a proposed project time scale. I cannot reiterate enough that any time spent within your school will be organised to fit in with your time tables and activities.

I would like very much to come in and talk to you with more details about your school possibly being included in this project. Please find my contact detail below to arrange a meeting at a time to suit you. Thank you again for your time. I look forward to hearing from you.

Yours Sincerely

Suzanne Bartholomew MBPsS BSc MSc

Sb1100@canterbury.ac.uk

Appendix 2: *Parent /guardian letter*

Canterbury Christ Church University

Dear Parent/Guardian,

I am a PhD researcher from the Department of Psychology at Canterbury Christ Church University. I would like to include your child and yourself in a research project based around the Ofsted report (2014) of Low –level disruption in the country's classroom.
Low level disruption is persistent interruptions that have no risk to the child's safety but could influence the academic achievements of the class. Examples of such behaviors are: swinging on chairs, calling out and fiddling with equipment. The research aims to investigate some of the influences of low-level disruption by looking at electronic device usage, classroom behaviour, the child's perception of the general routines and atmosphere within their home, their general well-being and extra-curricular activities.

Your child will be asked to do a range of tasks and activities from answering brief questionnaires to carrying out game tasks. All this will take place during regular school hours and at a time arranged between myself and teaching staff so not to interrupt your child's schooling day. I will also be making general observations of the classroom environment. Data will be gathered at two time points a year apart. A reminder letter will be sent out before the second data collection takes place.

Your section of the study is an on line survey which you complete at the following address:

https://cccusocialsciences.az1.qualtrics.com/SE/?SID=SV_6WODmK9Cq4yJNwF

On completion of the survey you will be given a chance to be entered into a prize draw to win £25 of Love to Shop voucher (the prize draw for the second time point survey will be a further £50).

Participation in this project is completely voluntary. Your child will always be asked if he or she would like to take part.
Your child may omit any questions or tasks that they do not wish to answer or join in with.
This project is not expected to involve physical risks or mental discomfort or harm.
To maintain confidentiality of the records will only be referred to by way of a personal code on any data collected, this code will be send to you following the collection of such data. This will identify all your family's data. The results of this research may be published or reported, your names will not be associated in any way with any published results. The information that is obtained during this research project will be kept strictly confidential and will not become a part of your child's school record.
All data and personal information will be stored securely within CCCU premises in accordance with the Data Protection Act 1998 and the University's own data protection requirements. Data can only be accessed by Suzanne Bartholomew. After completion of the study, all data is anonymise (i.e. all personal information associatedwillberemoved).You may withdraw your family's data by emailing your personal code to the email address given below until the time of processing (01/08/2016). I have a full DBS certificate. Contact details of investigator: Suzanne Bartholomew sb1100@canterbury.ac.uk

Please return the attached form only if you do not wish your family to take par

Title of Project: Antecedents of Low-level classroom disruption: A Bio-ecological systems perspective.

Name of Researcher: Suzanne Bartholomew

Contact details: sb1100@canterbury.ac.uk

Please sign and return this section of the letter only if you do not want your child to participate in this project before 20th June 2016.

_____	_____	_____
Name of Parent/guardian	Date	Signature
_____	_____	_____
Name of child	Class	Year Group

Appendix 3: Pupil questionnaire booklet 1

Children's answer booklet 1 Personal code:

	Strongly Disagree	Disagree	Not too Sure	Agree	Strongly Agree
1.I often find myself at a 'loose end' not knowing what to do					
2.I find it hard to entertain myself					
3.Many things I have to do are repetitive and dull					
4.It takes more encouragement to get me going than most people					
5.I don't feel motivated by most things that I do					
6.In most situations, it is hard for me to find something to do or see to keep me interested					
7.Much of the time I just sit around doing nothing					
8.Unless I am doing something exciting, even dangerous, I uninterested and dull.					

For the questions please tell about what you did *last week*. Place a tick in the box.

	None	Less than 1 hour	1 hour	2 hours	3 hours	4 hours	5 hours or more
On a school day, how many hours did you watch TV?							
On a school day, how many hours did you play video or computer games, use a computer or hand held devise for something that was not school work?							
On a weekend day, how many hours did you watch TV?							
On a weekend day, how many hours did you play video or computer games or use a computer for something that was not school work?							

7. During the past week, what time have you usually turned out the light and go to sleep on a school day?

☐☐:☐☐

8. During the past week, at what time have you usually woken up in the morning on a school day**?**

☐☐:☐☐

9. During the past week, what time have you usually turned out the light and gone to sleep at the weekend ?

☐☐:☐☐

10. During the past week, at what time have you usually woken up in the morning at the Weekend ?

☐☐:☐☐

11. Do you have a television in your bedroom? Yes ☐ No ☐

Please tick the appropriate box for each item stating how often or not you do this in class.

	NEVER	SOMETIMES	A LOT
Talking and chatting			
Disturbing other children.			
Calling out.			
Not getting on with work.			
Purposely making noises to gain attention.			
Fidgeting or fiddling with equipment.			
Answering back or questioning instructions			
Swinging on chairs.			

Appendix 4: Pupil questionnaire booklet 2

Children's answer booklet 2 Personal code: BOY GIRL AGE 9 10 11

ACTIVITY	OCCASIONALLY	MONTHLY	WEEKLY
Cubs/scouts			
Brownies/Girl-guilds/Rainbow			
St Johns Ambulance cadets			
Air/Army cadets			
Sea Scouts			
Swimming/Diving			
Football/Rugby			
Running/Hiking			
Ballet/Dance/cheerleading			
Trampolining/Gymnastics			
Riding Bike/scooter/skate board			
Drama/Music			
Religious clubs/Sunday schools			
Homework clubs			
English/maths tuition			
Youth clubs			
ADDITIONAL ACTIVITES…			

	VERY TRUE	QUITE TRUE	NOT TRUE
1. I have a regular bedtime routine	☐	☐	☐
2. You can't hear yourself think in our house	☐	☐	☐
3. It's a real zoo in our house	☐	☐	☐
4. We are usually able to stay on top of things	☐	☐	☐
5. There is usually a television turned on in our house	☐	☐	☐
6. The atmosphere in our house is calm	☐	☐	☐

Think of yourself	Really true	true	Really Not True	Not true
1.Some kids feel that they are very good at their school work				
2.Some kids often do not like the way they behave				
3.Some kids are often unhappy with themselves				
4.Some kids feel like they are just as smart as other kids their age				
5.Some kids usually do the right thing				
6.Some kids don't like the way they are do things				
7.Some kids are pretty slow in finishing their school work				
8.Some kids usually act the way they know they are supposed to				
9.Some kids are happy with themselves as a person				
10.Some kids often forget what they learn				
11.Some kids usually get in trouble because of things they do				
12.Some kids like the kind of person they are				
13.Some kids do very well at their classwork				
14.Some kids do things they know they shouldn't do				
15.Some kids are very happy being the way they are				
16.Some kids have trouble figuring out the answers in school				
17.Some kids behave themselves very well				
18.Some kids are not very happy with the way they do a lot of things				

Appendix 5: T1 Multiple regression: Variable Correlations (N=274)

Variable	2	3	4	5	6	7	8	9
LLCD	-.26**	.30**	-.12*	.27**	-.21**	-.26**	.12**	-.40**
Gender 2	1	-.09	.09	-.15*	.05	.07	-.02	.25**
Proneness to boredom 3		1	-.04	.18**	-.24**	-.30**	.16**	-.28**
Television in bedroom 4			1	-.16*	.04	.09	-.04	.04
Weekly screen time 5				1	-.12*	-.04	.18**	-.09
Self-esteem 6					1	.29**	-.10	.40**
Scholastic competence 7						1	-.13*	.40**
Home chaos 8							1	-.10
Behaviour conduct 9								1

Note: **p < .001,

*p<.05

Appendix 6: T1 Multicollinearity for continuous variables (N=274)

Variable	Tolerance	VIF
Gender	.950	1.053
Proneness to boredom	.863	1.158
Television in bedroom	.964	1.037
Weekly screen time (Hours)	.900	1.111
Self-esteem	.802	1.246
Scholastic competence	.794	1.259
Home chaos	.941	1.063
Behaviour conduct	.727	1.376

Appendix 7: T2 Multiple regression: Variable Correlations (N=249)

Variable	2	3	4	5	6	7	8	9
LLCD	-.39**	.31**	-.11*	.29**	-.26**	-.29**	.19**	-.66**
Gender 2	1	-.10**	.06	-.10	.15*	.08	-.16**	.35**
Proneness to boredom 3		1	-.04*	.12**	-.44**	-.39**	.27**	-.34**
Television in bedroom 4			1	-.06	.00**	.06**	-.14*	.15**
Weekly screen time 5				1	-.04	-.12*	.16*	-.21*
Self-esteem 6					1	.46**	-.26**	.30**
Scholastic competence 7						1	-.32**	.38**
Home chaos 8							1	-.26**
Behaviour conduct 9								1

Note: **p < .001, *p<.05

Appendix 8: T2 Multicollinearity for continuous variables (N=274)

Variable	Tolerance	VIF
Gender	.868	1.152
Proneness to boredom	.714	1.401
Television in bedroom	.958	1.044
Weekly screen time (Hours)	.884	1.132
Self-esteem	.678	1.474
Scholastic competence	.670	1.492
Home chaos	.824	1.131
Behaviour conduct	.700	1.428

Note: **p < .001, *p<.05